DRAFT RED-MARKS TO THE TRANSPORTATION DESIGN AND CONSTRUCTION MANUAL

Jefferson County Transportation Design & Construction Manual

JEFFERSON COUNTY, COLORADO PLANNING AND ZONING DIVISION

Revision Dates

The Transportation Design & Construction Manual, formerly known as Roadway Design & Construction Manual, adopted by the Board of County Commissioners of Jefferson County, Colorado on March 21, 1995, has since been amended on the following dates:

December 5, 1995

May 12, 1998

March 23, 1999

October 1, 2002

July 1, 2003

November 25, 2003

December 5, 2006

May 20, 2008

October 13, 2009

November 24, 2015

July 17, 2018

December 17, 2019

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Chapter 1

General Provisions

1.1. Short Title

These regulations together with all future amendments shall be known as the "Jefferson County Transportation Design and Construction Manual" (hereafter called MANUAL) as referenced in the Jefferson County Land Development Regulation (hereafter called LDR) and the Jefferson County Zoning Resolution (hereafter called ZR).

1.2. Jurisdiction

The requirements of this MANUAL shall apply to all subdividers, developers or other landowners, their employees, agents or contractors designing and constructing public and/or private streets/roads within unincorporated areas of Jefferson County (hereafter called County), except where superseded by State and/or the Federal regulations. The foregoing design and construction of transportation systems are subject to review and approval by the County pursuant to any County regulation or requirement.

1.3. Purpose and Effect

Presented in this MANUAL are the minimum design and technical criteria for the design and construction of streets/roads. All land development or any other proposed construction submitted for approval under the provisions of the LDR and/or ZR as applicable, shall include adequate transportation system analysis and appropriate transportation system design. Such analysis and design shall conform to the criteria set forth herein. Technical criteria not specifically addressed in this MANUAL shall follow the provisions of the American Association of State Highway and Transportation Officials (AASHTO) "A Policy of Geometric Design of Highways and Streets", as amended; the Colorado Department of Transportation (CDOT) Design Standards, as amended; and the Manual on Uniform Traffic Control Devices (MUTCD), as amended.

1.4. Enactment Authority

The LDR has been adopted pursuant to the authority conferred within: Article 28 of Title 30 (County Planning); Article 2 of Title 43 (State, County, and City Highway Systems); Article 20 of Title 29 (Land Use Control and Conservation); and other applicable sections of the Colorado Revised Statutes, as amended.

This MANUAL is adopted by resolution of the Board of County Commissioners, as the authority provided by which the County promulgates the LDR.

1.5. Amendment and Revisions

These criteria may be amended as new technology is developed and/or if experience gained in the use of this MANUAL indicates a need for revision. Amendments and revisions will be made by resolution of the Board of County Commissioners.

1.6. Enforcement Responsibility

It shall be the obligation of the Board of County Commissioners acting through the Department of Development and Transportation to enforce the provisions of this MANUAL.

1.7. Review and Approval

The County will review all submittals for compliance with this MANUAL. An approval by the County does not relieve the owner, engineer, or designer from responsibility of ensuring that the calculations, plans, specifications and construction are in compliance with the MANUAL and accepted engineering practices.

1.8. Interpretation

In interpretation and application of the provisions of the MANUAL, the following shall govern:

1.8.1. The provisions shall be regarded as the minimum requirements for the protection of public health, safety, comfort, convenience, prosperity, and welfare of the residents of the County.

1.8.2. Whenever a provision of this MANUAL and any other provision of the LDR or any provision in any law, ordinance, resolution, rule, or regulation of any kind, contains any restriction covering any of the same subject matter, whichever restrictions are more restrictive or impose higher standards of requirements shall govern.

1.8.3. This Jefferson County Transportation Design and Construction Manual was adopted by the Board of County Commissioners on March 21, 1995. Any amendments to this MANUAL shall be immediately effective upon its adoption by the Board of County Commissioners. All applications shall be subject to the provisions of this MANUAL that are in effect at the time of the formal application submittal, unless otherwise specified by the Board of County Commissioners resolution.

1.9. Relationship to Other Standards

If the State or Federal Government imposes stricter criteria, standards, or requirements, these shall be incorporated into the County's requirement after due process and public hearings needed to modify the County's regulations and standards.

Chapter 2

Construction Drawing Requirements

2.1. General Requirements

Construction drawings must be submitted in Portable Document Format (PDF) unless otherwise approved for hard copy submittal, to scale, shall be a complete package, which includes all details and documentation necessary for the construction of the proposed improvements. The plans shall be prepared by, or under the direction of a professional engineer, registered in the State of Colorado, and qualified in the field of civil engineering.

The final set of plans (hard copy) for each drawing shall be 24" x 36", unless otherwise approved by the County, and shall contain a title block, sheet number, scale, north arrow, and date.

The developer's engineer shall comply with Colorado Revised Statute 9-1.5-101 through 9-1.5-108 "Excavation Requirements" when the nature of work proposed (1) will involve a contract with Jefferson County (this shall include, but not be limited to binding agreements such as permits and Subdivision Improvement Agreements); (2) will involve primarily Horizontal Construction and not the construction of buildings; (3) will involve excavation that exceeds two (2) feet in depth and that is a contiguous 1,000 square feet, or involve Utility

Boring; and (4) requires the design services of a licensed professional engineer. Existing and Proposed Subsurface Utilities shall be identified on the design plans in accordance with ASCE 38 Standards. For more information please reference the Colorado Revised Statutes and Federal Highway Administration websites.

2.2. Cover Sheet

A cover sheet ~~should~~ shall be provided with each submittal which contains the following:

1. A vicinity map at a minimum scale of 1" - 2000' which shows the location and name of all arterial streets/roads within one mile of the proposed development and all streets/roads within the proposed development.
2. A legend, scale, and north arrow.
3. General notes.
4. Index of sheets.
5. Seal, signature, and date of the professional engineer responsible for plan preparation.
6. A permanent benchmark description and location based on USGS datum. At least one permanent benchmark must be established within each subdivision or filing thereof, located on public property.

If a cover sheet is not provided, the above information shall be included on the first sheet of the submittal.

2.3. Plan

The plan view shall include but not be limited to, the following:

1. The scale shall be a minimum of one (1) inch to fifty (50) feet and shown on the plan.
2. Locations and dimensions of existing and proposed improvements, property lines, easements, and Right-of-Way. Plan view limits shall extend 100 linear feet before the Point of Beginning, and 100 linear feet after the Construction End. Each Point of Beginning and Construction End shall be clearly labeled and identified with stationing.
3. Names of streets/roads.
4. Survey line ties to section or quarter corners.
5. Survey lines and centerline stationing. Stationing shall be equated to flowline stationing at horizontal radius curves, cul-de-sacs, and other departures from normal roadway cross sections.
6. Centerline stations for all intersecting roadways and commercial driveways.
7. Existing and proposed street/road improvements (sidewalk, curb, gutter, pavement limits, bridges, culverts, inlets, manholes, asphalt core sample locations, guardrails, curb ramps, etc.). Existing improvements shall be clearly depicted by a dashed line; proposed improvements shall be depicted by a solid line and or greyscale or hatching. Plans shall include existing and proposed limits for asphalt pavement, including areas of milling and overlaying, as well as new asphalt placement. All items shall have a corresponding legend.
8. Curve layout including radius, degree of curve, deflection angle, length of curve, point of curvature, and point of tangency.
9. Elevations and station shall be noted for all curb returns, points of curvature, points of tangency, and high or low points of all vertical curves. The existing and proposed percent cross slope shall be repeated on the plan sheets at select points. Include elevations and cross slopes, existing and proposed, for all lanes of intersection improvements, regardless if construction is planned for opposing streets.
10. Rate of super elevation.
11. Typical template(s) for streets/roads.

12. Match lines and consecutive sheet numbers.

13. Key map.

14. A minimum of one (1) permanent bench mark, based on United States Geological Survey's datum, fully described, within each subdivision or filing thereof.

15. Existing and proposed utilities and structures, including but not limited to: water, fire hydrants, sanitary sewer, storm sewer, telephone, gas, electric, cable television, fiber optic. Existing utility pothole information shall be organized on a separate plan sheet to identify location, depth, utility type, pipe size and material, conflicts with proposed improvements, and other information obtained during subsurface investigation. Subsurface investigation shall include new laterals or service connections to existing main lines and be clearly shown on separate plan sheets. *

16. Stations and critical elevations of all utility and drainage appurtenances. *

17. Construction phasing. *

18. Major Collector and/or Arterial intersection design at a scale of one (1) inch to twenty (20) feet. *

19. Traffic signal design at a scale of one (1) inch to twenty (20) feet. *

20. Signing and Striping Plan.

20. Noise attenuation measures/details. *

21. Trails. *

22. Sediment and erosion control measures/details. *

23. Landscaping. *

*May be included on separate plan sheets.

2.4. Profile

The profile shall include, but not be limited to the following:

1. The scale shall be a minimum of one (1) inch to five (5) feet for street profiles and a minimum of one (1) inch to ten (10) feet for road profiles, and be shown on the plan.

2. Existing (dashed line) and proposed (solid line) grades.

3. Continuous centerline stationing for the entire portion of the existing and proposed roadway shown in the plan. Clearly label centerline stationing for all intersecting roadways and commercial driveways.

4. All design elevations shall be centerline, flowline, back of curb, or lip of gutter.

5. Vertical curve data including length of curve, P.V.C., P.V.T., P.V.I., beginning and end grades. All vertical curves shall be symmetrical.

6. Curb return profiles at a horizontal scale of 1" = 10' and vertical scale of 1" = 1'.

7. All existing curbs, gutters, sidewalks, culverts or storm sewers, ditches and irrigation structures and asphalt adjacent to the proposed design, as well as the same such features that are 100 linear feet before the Point of Beginning and continue for 100 linear feet beyond the Construction End. Basis for existing grades shall be as-built elevations at intervals not to exceed fifty (50) feet. All existing grades, locations and alignments shall be field surveyed by a licensed Professional Land Surveyor for design of the proposed improvements. Previously approved designs are not an acceptable means of establishing existing grades.

8. Separate flowline or top of curb profiles shall be provided for all proposed curb and gutter, including for design of cul-de-sacs and any other departure from a 2% street/road cross slope. In addition, cross-sections at intervals not to exceed 50 feet are required if a departure from a normal cross-slope is proposed.

9. Existing and proposed utilities. *

*May be included on separate plan sheets.

2.5. Cross Sections

1. On widening or matching projects, or as required by the Jefferson County Planning & Zoning, cross sections of the proposed new construction and existing improvements within the Right-of-Way shall be provided at survey stationing at a maximum of fifty foot intervals and at locations of cross culverts. The scale shall correspond to that used on the plan and profile.

2. Cross sections shall identify both the existing or matching percent cross slope of the roadway, as well as percent proposed cross slope.

3. Cross sections shall identify the elevation at the point of match for widening projects for each station interval.

4. Cross sections shall identify the proposed new road segment in gray scale or other hatching.

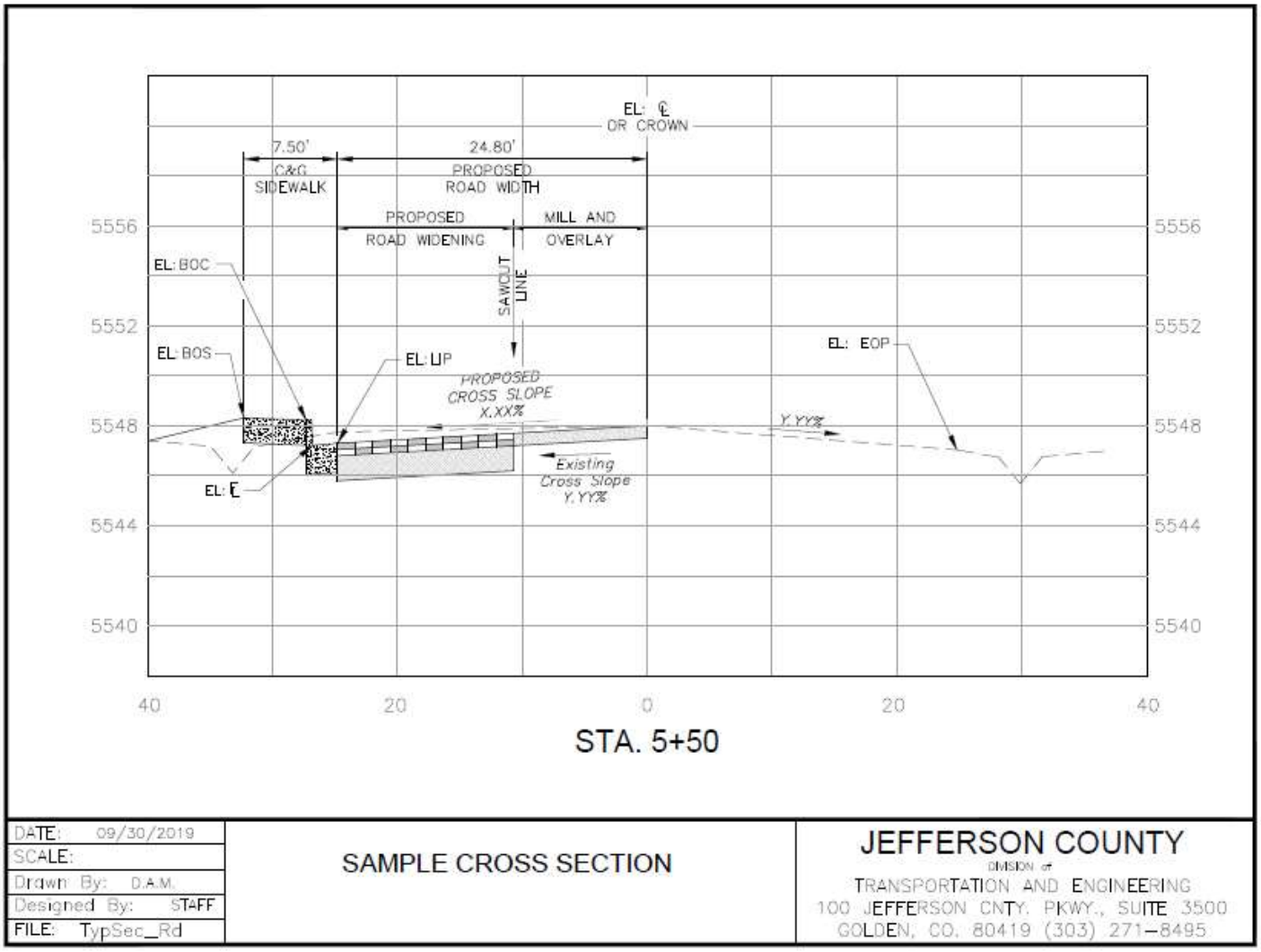
5. Cross sections shall identify the proposed pavement treatment or alterations, such as mill and overlay of the match point; as well as the proposed new pavement section and respective lifts asphalt.

6. Core samples shall be collected from the existing roadway prior to construction to determine the existing asphalt depth and condition. Such cores shall not exceed 4-inches in diameter and shall be collected at the centerline of the existing road, as well as edge of existing asphalt. The existing depth of asphalt shall be represented on the cross sections.

7. Proposed widening shall avoid cross sections with gross inverts or peaks at the match point. Normal roadway cross sections shall follow AASHTO design criteria that limit the minimum cross slope to 1.5% and maximum cross slope to 3.0%. Cross slope grade change shall note exceed +/- 0.5% as measured every 50 linear feet along the station intervals. There shall be no change in existing cross slope greater than +/- 1.0% from the match point to the proposed edge of asphalt, or the flow line or the lip of the gutter pan.

Refer to Figure 2-1 “Sample Cross Section” below:

Figure 2-1 - Sample Cross Section



2.6. Details

Jefferson County or CDOT standard details ~~may~~ shall be referenced as applicable. Where these standards cannot be used, a separate detail sheet shall be provided with an explanation detailing why these standard details are not being used.

2.7. Standard Notes

The following general notes shall appear on the cover sheet or the first sheet of the plans for all street/road construction plan packages.

1. A Construction Permit from Transportation and Engineering is required prior to commencing work within County Right-of-Way.
2. Any work within State Right-of-Way will require a State Construction Permit.
3. The contractor shall notify Transportation and Engineering at least 24 hours prior to starting construction within the Right-of-Way.
4. The contractor shall provide all signs, barricades, ~~flagmen~~flaggers, lights, or other devices necessary for safe construction traffic control in accordance with the current edition of the MUTCD and as modified by the Colorado Supplement to the MUTCD. A construction traffic control plan shall be submitted to and approved by Transportation and Engineering prior to the issuance of any construction

permit for work within County Right-of-Way.

5. The contractor shall contact the Utility Notification Center of Colorado at least 48 hours prior to construction.

6. Construction specification: Current edition of the Colorado Department of Transportation Standard Specifications for Road and Bridge Construction, special provisions and revisions thereto, and as amended by Chapter 5 of this MANUAL.

7. The subgrade material shall be scarified or removed to a depth required by Jefferson County per information obtained from laboratory tests and/or as required in the Pavement Design Report. Additives or approved material may be required if the native material is unsatisfactory. The subgrade shall be compacted to a minimum density and moisture content range of 2 percent below optimum to 2 percent above as determined in accordance with AASHTO designation T180 or T99 and in accordance with the Standard Specifications Section 203.07.

8. Class 6 aggregate base course for shoulders shall be placed and compacted 95 percent modified Proctor Test (AASHTO T180) after placement of asphalt.

9. Existing asphalt pavement shall be straight sawcut or bladecut when adjoining with new asphalt pavement. SS-1 tack coat shall be applied to all surfaces.

10. Structural section, including subbase and asphalt, shall be constructed according to the Final Pavement design that has been prepared by the developer's engineer, and approved by Transportation and Engineering according to Chapter 4 of this MANUAL. Existing structural section at the match point shall comply with the minimum Full Depth Asphalt thickness identified in Table 4.3 "Minimum Pavement Sections" of this MANUAL for the respective road classification, regardless of the original thickness of asphalt and / or subbase.

The following notes shall appear in addition to the above for all street construction, as applicable:

1. Concrete may be placed by machine methods if all finish lines are within 1/8" + tolerance of the lines shown on the plans. The flowline must be free draining and comply with this MANUAL.

2. One half (1/2) inch expansion joint material shall be installed when abutting any existing concrete or a fixed structure.

3. The contractor is advised to first obtain inspection of forms by Transportation and Engineering before placing concrete curb, gutter, sidewalk, inlets, and/or other concrete drainage structures.

Chapter 3

Design and Technical Criteria

3.1. General

This section sets forth the minimum design and technical criteria to be used in the preparation of all Public and Private street/road construction plans. All street/road design shall be in accordance with the current edition of AASHTO Geometric Design of Highways and Streets, unless modified herein.

For this regulation, streets shall be used in the Plains and roads shall be used in the Mountains, except as indicated below:

3.1.1 Roads may be allowed in the Plains in locations with slopes greater than 15%, subject to approval by Planning and Zoning.

3.1.2 Streets may be required in the following Mountains locations as directed by Planning and Zoning: 1) Areas where urban development is projected based on Community Plans designations, 2) Areas where curb and gutter would be needed to mitigate drainage impacts.

3.2. Street/Road Types

3.2.1 Public Streets/Roads: Streets or roads that are owned and maintained by the City, County or State for public use.

3.2.2 Private Streets/Roads: Streets or roads that are owned, maintained, or restricted for the use by a person, group of people, or non-governmental entity.

3.2.3 Non-Maintained Streets/Roads in County ROW: Streets or roads that are owned by the County for public use, but are not constructed to a County public standard and are not County maintained.

3.3. Functional Classification

Jefferson County has adopted a Major Thoroughfare Plan based on traffic volumes, existing and/or zoned land use, and anticipated growth. The Major Thoroughfare Plan designates streets/roads as freeway, parkway, principal arterial, minor arterial, major collector, or collector.

3.3.1. Freeway: A freeway serves major regional traffic movements and carries the highest traffic volume of all classifications. A freeway is planned to have four to six through lanes and may have frontage roads. The movement of traffic takes precedence over access. Access is fully controlled and is allowed only to other freeways or to arterials by grade separated interchanges. Opposing movements on a freeway are separated by a raised or depressed median. Pedestrians and bicycle traffic are physically separated from the travel lanes. A freeway may be developed as a parkway with at-grade intersections as a first phase. Freeways are typically in State jurisdiction.

Design Speed: Special Design Required

3.3.2. Parkway: A parkway serves major regional traffic movements and carries high traffic volumes. A parkway is planned to have four to six through lanes. The movement of traffic takes precedence over access. Access is fully controlled and allowed only to major collector classifications or higher. Grade separation at major intersections is preferred over traffic signals. Opposing movements on a parkway are separated by a raised or depressed median. Pedestrians and bicycle traffic are physically separated from the travel lanes unless a bicycle lane or paved shoulder is designated per the Jefferson County Bicycle Plan as amended.

Design Speed: 40 - 50 MPH

3.3.3. Arterial.

3.3.3.1. Principal Arterial: A principal arterial serves major regional traffic movements and carries high traffic volumes. A principal arterial is planned to have four to six through lanes in the Plains and four through lanes in the Mountains. The movement of traffic takes precedence over access. Access is controlled and allowed to collectors and higher class facilities is preferred, but some restricted access to major developments may be allowed. Opposing movements are usually separated by a raised, depressed, or painted median. Pedestrians and bicycle traffic may be carried on detached walks and trails unless a bicycle lane or paved shoulder is designated per the Jefferson County Bicycle Plan as amended.

Design Speed: 35 - 45 MPH

3.3.3.2. Minor Arterial: A minor arterial serves intracommunity traffic and carries moderate traffic volumes. Minor arterials are planned to have four lanes in the Plains. In the Mountains, minor arterials are planned to have two lanes, plus turn lanes and passing or climbing lanes where warranted. Neither the movement of traffic nor access takes precedence. Reasonable access is allowed except for private residential driveways. Opposing movements are generally separated by a raised, depressed, or painted median in the Plains. Pedestrians and bicycle traffic are usually carried on a detached walk or an adjacent trail unless a bicycle lane or paved shoulder is designated per the Jefferson County Bicycle and Pedestrian Plan, as amended.

Design Speed: 30 - 40 MPH

3.3.4. Major Collector: A major collector serves intracommunity traffic and carries moderate traffic volumes. Major collectors are planned to have two lanes, plus turn lanes where warranted, in the Plains and the Mountains. Neither the movement of traffic nor access takes precedence. Reasonable access is allowed except for private residential driveways. Opposing movements are generally

separated by a median/turn lane. Pedestrians and bicycle traffic are usually carried on a detached walk or an adjacent trail unless a bicycle lane or paved shoulder is designated per the Jefferson County Bicycle and Pedestrian Plan, as amended.

Design Speed: 30 - 40MPH

3.3.5. Collector: A collector serves neighborhood traffic movements over short distances, generally accessing arterials and major collectors. A collector has two lanes, plus turn lanes where warranted, in the Plains and two lanes in the Mountains. Access takes precedence over the movement of traffic. Reasonable access for streets is allowed except for private residential driveways. Opposing movements are not physically separated. Pedestrian traffic is handled on attached or detached sidewalks in the Plains. No special accommodation is made for bicycle traffic.

Design Speed: 25 - 30 MPH

3.3.5. Local: A local street or road serves neighborhood traffic over very short distances to higher class roadways. A local street or road has two travel lanes. It is always paved in the Plains and usually paved in the Mountains. Access to adjacent land is its primary purpose. All types of access are allowed. Opposing movements are not physically separated. Pedestrian traffic is handled on attached or detached sidewalks in the Plains. No special accommodation is made for bicycle traffic.

Design Speed: 15 - 25 MPH

3.4. Standard Templates

The following templates reflect the minimum section for each street/road classification and for cul-de-sacs. Any additional requirements including, but not limited to, acceleration/deceleration lanes and left turn lanes are not shown.

Template Number	Description	Typical Volume Range in Average Daily Traffic (ADT)	Right-of-Way Width (Feet)
Public Street/Road Templates			
1	Principal Arterial Street	Greater than 25,000	130’
2	Minor Arterial Street	15,000 to 25,000	100’
3	Major Collector Street	8,000 to 15,000	~~78’~~84’
4	Collector Street (36’ FL to FL) with Attached Sidewalks	1,000 to 8,000	50’
5	Collector Street (36’ FL to FL) with Detached Sidewalks	1,000 to 8,000	37’ + 20’ minimum easement for sidewalks, maintenance and traffic signs
6	Local Street (34’ FL to FL) with Attached Sidewalks	Less than 1,000	50’
7	Local Street (34’ FL to FL) with Detached Sidewalks	Less than 1,000	35’ + 20’ minimum easement for sidewalks, maintenance and traffic signs
8	Local Street (28’ FL to FL) with Attached Sidewalks	Less than 350	45’
9	Local Street (28’ FL to FL) with Detached Sidewalks	Less than 350	30’ + 18’ minimum easement for sidewalks, maintenance and traffic signs

Template Number	Description	Typical Volume Range in Average Daily Traffic (ADT)	Right-of-Way Width (Feet)
Public Street/Road Templates			
10	Minor Arterial Road	Greater than 8,000	70’
11	Major Collector Road	2,000 to 8,000	50',~~,~~ 60' for turn lanes
12	Collector Road	1,000 to 2,000	50’
13	Local Road	Less than 1,000	50’
14	Street Cul-de-sac – Option 1 Street Cul-de-sac – Option 2 Street Cul-de-sac – Option 3	~~See LDR, Section 15~~	90’ 100’ 112’
15	Partial Cul-de-sac for Local Streets	~~See LDR, Section 15~~	45’~~R~~
16	Offset Cul-de-sac for Local Streets – Option 1 Offset Cul-de-sac for Local Streets – Option 2 Offset Cul-de-sac for Local Streets – Option 3	~~See LDR, Section 15~~	90’ 100’ 112’
17	Cul-de-sac for Local Roads	~~See LDR, Section 15~~	90’
Driveway, p~~P~~rivate street/road templates and Non-maintained streets/roads in County ROW templates (see section 3.7.8) *			
~~18~~	~~Driveway/Private Street/Road & Non-maintained Street/Road in County ROW (No Parking)~~	~~See LDR, Section 15~~	~~20’ minimum~~
18a	Driveway		14’- 16’
18b	Private Road		14’-24’
18c	Private Street with Curb and Gutter		14’-24’
18d	Private Street with Streetside Ditch		14’-24’
19	Pull Out for Private Road	~~N/A~~	~~n/a~~
20	Hammerhead Turnaround for Driveway/Private Road	~~See LDR, Section 15~~	varies
21	Hammerhead Turnaround for Private Street	~~See LDR, Section 15~~	varies

** The "non-maintained streets/roads in County ROW" templates can only be used if the following provisions apply:*

1. *The County is not holding a guarantee for a previous development process that would require the construction of a County public standard street/road in the ROW.*
2. *The County does not wish to have the street/road constructed to a County public standard.*
3. *The street/road is not identified on the Jefferson County Major Thoroughfare Plan.*

3.5. Horizontal Alignment

3.5.1. Horizontal Curves: Minimum curve radii for a normal crown section based on design speed are summarized in the table below.

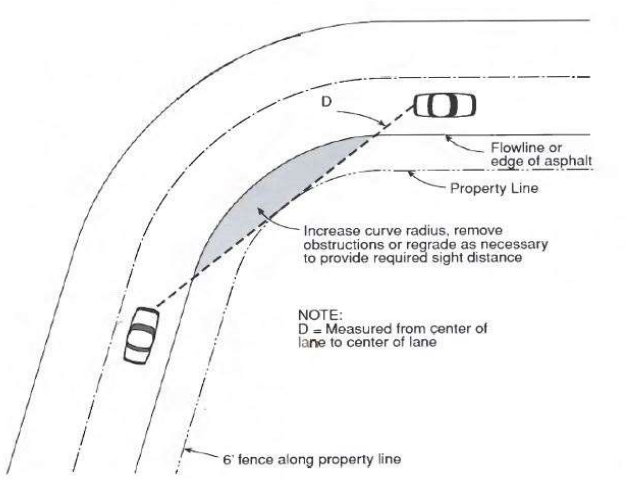
	Minimum Curve Radius (feet)		
Design Speed (mph)	~~Minimum Curve Radius (feet)~~Paved	Recycled Asphalt	Gravel
15	50	60	75
20	~~107~~90	110	135
25	~~198~~140	170	210
30	~~333~~200	240	NA
35	~~510~~275	NA	NA
40	~~762~~Special Design	NA	NA
45	~~1039~~Special Design	NA	NA
50	Special Design	NA	NA

3.5.1.1. For collector roads, the centerline line radius may be reduced to a minimum of one hundred (100) feet, provided, however, that on a curve with a centerline radius less than four hundred (400) feet, the maximum grade shall be reduced by one (1) percent for each one hundred (100) feet or fraction thereof the radius is reduced.

3.5.2. Super Elevation: Super elevation is required for curves on all principal and minor arterial streets/roads and selected collector streets/roads. Minimum horizontal curve radius, rate of super elevation, and lengths of tangent runout and super elevation runoff shall be in accordance with the recommendations of the current edition of AASHTO Geometric Design of Highways and Streets.

Super elevation shall not be used on local streets, but may be used on local roads.

3.5.3. Sight Distance: Horizontal alignment must provide at least the minimum stopping sight distance for the design speed at all points. This includes visibility at intersections, as well as around curves and roadside encroachments. Where an object off the traveled surface restricts sight distance, the minimum radius of curvature is determined by the stopping sight distance. A likely obstruction may be a bridge abutment, retaining wall, cut slope, landscaping, or side or corner of a building. In considering sight distance, it shall be assumed a 6'-0" fence (as measured from finished grade) exists along all property lines except in the sight distance triangles required at all intersections. Minimum stopping sight distance (measured from the centerline of the inside lane) shall be as follows for centerline grades equal or less than 3%:



Design Speed (mph)	Stopping Sight Distance (d) (feet)
15	80
20	115
25	150~~5~~
30	200
35	250
40	30~~2~~5
45	~~400~~360
50	4~~2~~75

For grades greater than 3%, stopping distance shall be in accordance with the recommendations of the current edition of AASHTO Geometric Design of Highways and Streets.

3.6. Vertical Alignment

3.6.1. Grades: The minimum grade for all new streets and roads is 2%, except within a sag. A minimum flowline grade of 1.5% shall be maintained around all full and partial cul-de-sac bulbs, except within a sag. Planning and Zoning may approve grades as low as 1% if existing conditions make it infeasible to construct a minimum of 1.5%. The maximum grade for all public streets is 6.0% and for public roads is 8.0%. The maximum grade for public roads may be increased to 10% where the dip of the natural terrain bears between South 60° East and South 45° West.

3.6.2. Intersection Grades: The maximum grade at intersections shall be in accordance with the following figure and table. Grades and lengths apply to the street/road controlled by a stop sign. At signalized and uncontrolled intersections, grades and lengths apply to all legs of the intersection.

	Through Street / Road		
Intersection Street/Road	Local	Collector	Major Collector/Arterial
Local	50' @ 4%	100' @ 4%	100' @ 4%
Collector	-	100' @ 3%	200' @ 2%
Major Collector/Arterial	-	-	200' @ 2%

3.6.3. Changing Grades. Continuous grade changes shall not be permitted. The use of grade breaks in lieu of vertical curves is discouraged; however, if a grade break is necessary and the algebraic difference in grade (A) does not exceed four-tenths (0.40) of a percent along the street/road, the grade break will be permitted.

The maximum grade break allowed at the point of tangency at a curb return for local and collector streets shall be two (2) percent and a maximum of one (1) percent for arterial streets.

3.6.4. Vertical Curves. All vertical curves shall be symmetrical. A vertical curve shall be used when the algebraic difference in grade (A)

equals or is greater than four-tenths (0.40) of a percent. The minimum grade within a sag (sump) vertical curve is five-tenths (0.50) of a percent. All vertical curves shall be labeled, in the profile with curve length (L) and K value (= L/A). Vertical Curve requirements shall apply to all Public and Private Streets, Roads and Driveways. The minimum K values for crest and sag vertical curves shall be in accordance with the following table:

	Minimum K Value	
Design Speed (mph)	Crest	Sag
15	3	10
20	7	17
25	12	26
30	~~30~~19	~~40~~37
35	~~50~~29	~~50~~49
40	~~80~~44	~~70~~64
45	~~120~~61	~~90~~79
50	~~160~~84	~~110~~96

3.6.5. Connection with Existing Streets/Roads

3.6.5.1. Connection with existing roadways shall be smooth transitions conforming to normal vertical curve criteria (see Section 3.6.4. of these standards) if the algebraic difference in grade (A) between the existing and proposed grade exceeds four-tenths (0.40) of a percent. When a vertical curve is used to make this transition, it shall be fully accomplished prior to the connection with the existing improvement, and comply with the grade requirements at intersection approaches.

3.6.5.2. Existing grade shall be shown for at least three hundred (300) feet with field verified as-builts showing stations and elevations at twenty-five (25) foot intervals. In the case of connection with an existing intersection, these as-builts are to be shown within a three hundred (300) foot radius of the intersection. This information will be included in the plan and profile that show the proposed roadway.

3.6.5.3. Previously approved designs for the existing improvement are not an acceptable means of establishing existing grades; however, they are to be referenced on the construction plan where they occur.

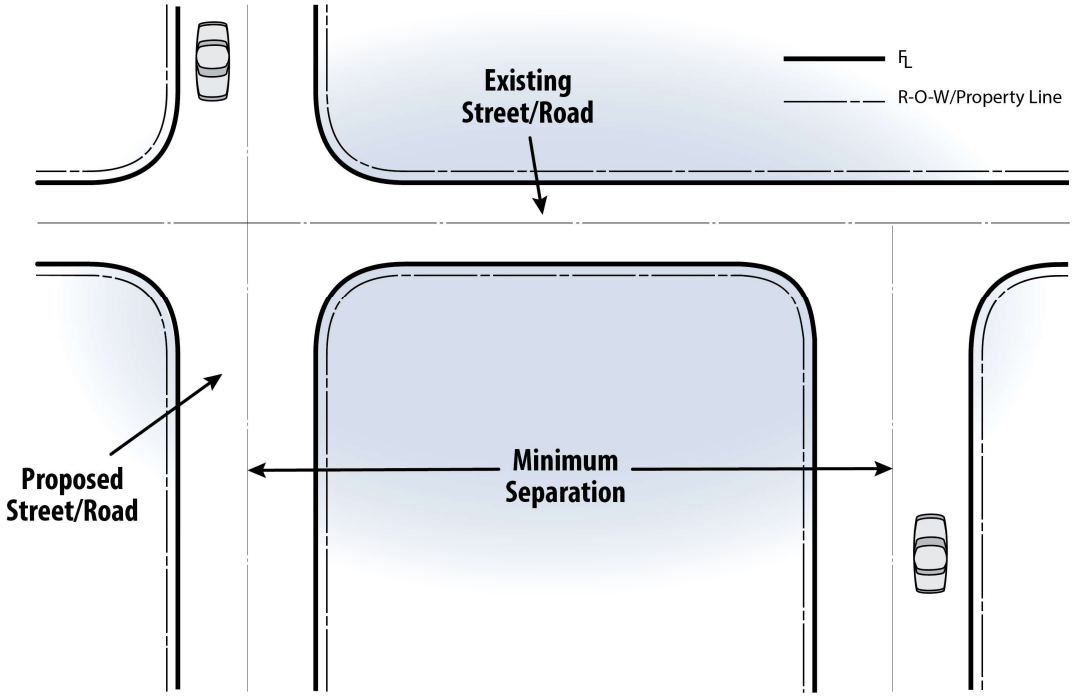
3.6.5.4. The basis of the as-built elevations shall be the same as the design elevations (both flowline or top of curb, etc.) unless otherwise approved by Planning and Zoning.

3.7. Intersection Spacing, Vision Clearance Triangle and Sight Distance for Streets, Roads and Driveways

3.7.1. Intersection Spacing: Spacing of intersections (measured centerline to centerline) shall be in accordance with the following table and the graphic below:

Proposed Street/Road: Existing Street/Road	Minimum Separation (feet)
Local: Local or Collector	175
Local: Arterial or Major Collector	500
Collector: Collector	230

Collector: Major Collector ~~or higher~~	~~1000~~660
Collector: Arterial or higher	1000
Major Collector: Major Collector	~~660~~1000
Major Collector: Arterial or higher	1320
Arterial: Arterial or higher	5,280’



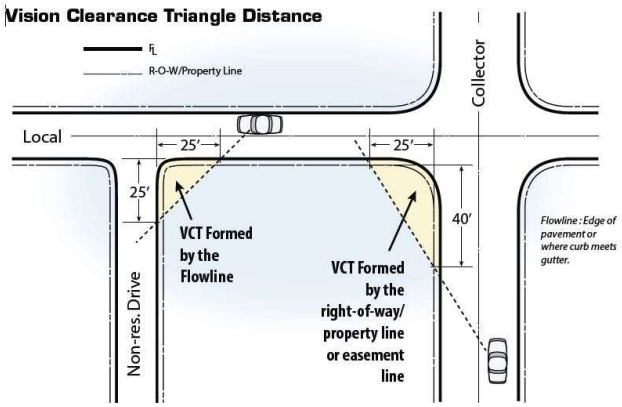
3.7.2. Vision Clearance Triangle: The table below shows where a vision clearance triangle must be provided.

Required	Not Required
Street/Road Intersections	Intersection of internal drive isles in non-residential*
Intersections of non-residential driveways with streets/roads	Multi-family and townhome developments*
Intersections of multifamily and/or townhome residential drive isles with streets/roads	
Intersections of street/roads and railroad Right-of-Way	

** Layout of these types of developments should not impede a driver's ability to see on-coming vehicles and pedestrians at intersections*

As illustrated below, the vision clearance triangle must provide an unobstructed view across the triangle formed by the Right-of-Way/property line or easement line adjacent to a street or road as illustrated. The vision clearance triangle may also be formed by the flowline adjacent to a street or road as illustrated below subject to approval by Planning and Zoning. The approval of the vision clearance triangle formed by a flowline is predicated on a fully built-out street or road and existing Right-of-Way that exceeds the Right-of-Way requirements in the Land Development Regulation. Within the area of the triangle, there shall be no fence, wall, landscaping, structure

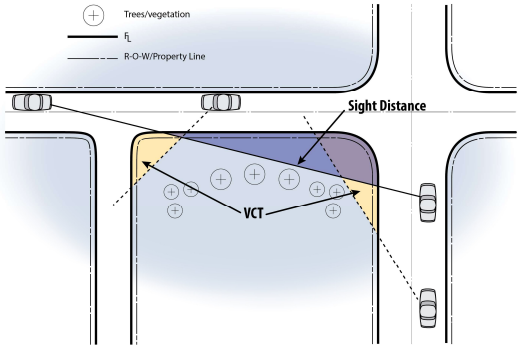
or other obstruction to view more than forty-two (42) inches in height~~, or trees with foliage or signs lower than eight (8) feet in height~~ (measured from the flowline or edge of pavement on the street/road surface). The allowable height of forty-two (42) inches is determined by measuring from the flowline or edge of pavement, as applicable. For example, the grade on a lot within the triangle is 12'' higher than the flow line of a gutter, the allowable height of landscaping would be 30" on the property.

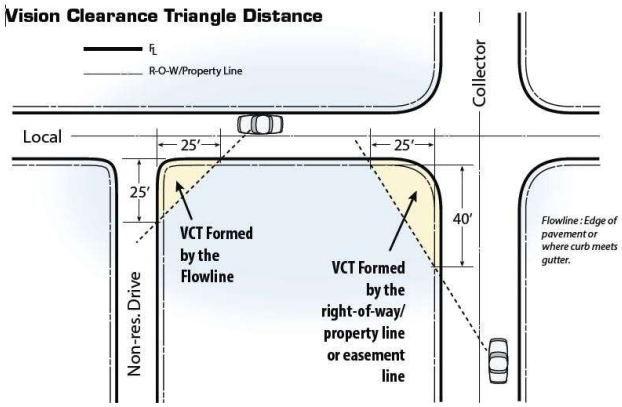


Street/Road Classification	Required Distance from Intersection
Non-residential drive	25'
Local	25'
Collector	40'
Major Collector/Arterial/Parkway	55'
Railroad Right-of-Way	55'

Note that if there is any conflict between this provision (3.7.2) and the Sight Distance provision (3.7.2.1) of this MANUAL, the Sight Distance provision shall take precedence. Note that if a physical median exists or is proposed at an access point restricting or eliminating a conflict point, the Vision Clearance Triangle requirements will not apply where no conflict points exist. See graphic below for a comparison between Sight Distance and the Vision Clearance Triangle.

Comparison between Sight Distance and the Vision Clearance Triangle





~~Street/Road Classification~~	~~Required Distance from Intersection~~
~~Non-residential drive~~	~~25'~~
~~Local~~	~~25'~~
~~Collector~~	~~40'~~
~~Major Collector/Arterial/Parkway~~	~~55'~~
~~Railroad Right-of-Way~~	~~55'~~

3.7.2.1. Sight Distance: At any street/road intersections or multifamily residential, commercial and industrial site driveways, an unobstructed view as defined above must be provided across the area formed by the flowline or edge of pavement on one street/road and the flowline or edge of pavement of the intersecting street/road (or edge of driveway) and lines (labeled d1 or d2 on the Sight Distance figure) connecting them at ten (10) feet from their point of intersection. This area will be used to ensure that drivers of vehicles exiting from the stopped approach have the minimum required sight distance available. The minimum required sight distance shall be in accordance with the Minimum Sight Distance Requirements table for two lane streets/roads.

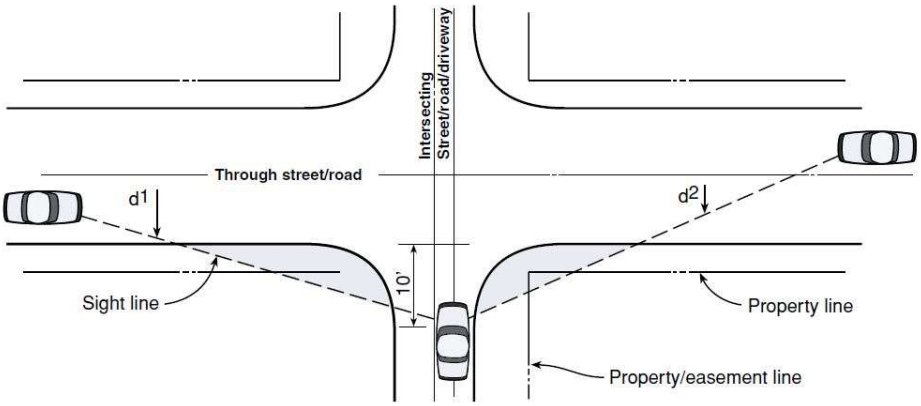
Minimum Sight Distance Requirements

(in feet) for vehicles entering onto two-lane streets/roads:

Operating Speed (mph)	Left Sight Distance d1 *	Right Sight Distance d2 **
20	220	130
25	260	170
30	350	260
35	430	350
40	530	440
45	610	570
50	740	700

** Measured from the driver's eye ten feet back of the flowline or pavement edge to the vehicle approaching in the outside lane.*

*** Measured from the driver's eye ten feet back of the flowline or pavement edge to the vehicle approaching in the median lane.*



1. Requirements assume that the vehicle is stopped on the proposed public or private street/road or driveway.

2. Requirements are based on a 3.5-foot driver eye height in the stopped vehicle and a 4.25-foot height of the approaching vehicle.

3. The operating speed of the approaching vehicle is assumed to be the posted speed limit.

4. Sight distance requirements as shown in the Minimum Sight Distance Requirements table are designed to enable vehicles entering the street/road to accelerate to the operating speed of approaching vehicles without causing the approaching vehicles to reduce speed by more than 10 mph.

5. Truck traffic (WB30 or larger) entering onto streets/roads requires longer sight distances than shown in Table. Any proposed public or private street/road or driveway regularly used by truck traffic may require an individual analysis.

6. When the criteria for sight distances cannot be met, the County may deny the access, prohibit left turns by vehicles entering the street/road or require speed change lanes.

3.7.3. Right Turn Lanes

3.7.3.1. Right Turn Acceleration Lanes: Right turn acceleration lanes may be required based on an approved transportation study. Right turn acceleration lanes may also be required where necessary for public safety and traffic operations based upon site specific conditions, as determined by Planning and Zoning.

3.7.3.2. Right Turn Deceleration Lanes: Right turn deceleration lanes are required at arterial and major collector street/road intersections and at driveways on arterial streets/ roads as needed based on required transportation study/analysis. Transportation study/analysis shall address storage, as applicable. Right turn deceleration lanes may also be required where necessary for public safety and traffic operations based upon site specific conditions, as determined by Planning and Zoning.

3.7.3.3. If the proposed street/road intersection or driveway is within two different speed zones, the criteria for the higher speed zone apply.

3.7.3.4. Where there are three or more through lanes in the direction of travel, right turn acceleration and deceleration lanes will be required only when determined necessary by Planning and Zoning due to high traffic volume or other site specific safety considerations.

3.7.3.5. Taper and lane lengths shall be in accordance with the following criteria.

Deceleration Right Turn Lanes

Design Speed (M.P.H.)	Taper Length (For 11' Lane Width)	Lane Length	Total Length* (Taper Length + Lane Length)
25	80'	120'	200'
30	100'	150'	250'

35	120’	190’	310’
40	140’	230’	370’
45	160’	280’	440’
50	180’	320’	500’

**At signalized intersections, where storage is needed for right-turning vehicles, additional length shall be provided to accommodate the average number of vehicles anticipated.*

Acceleration Right turn Lanes

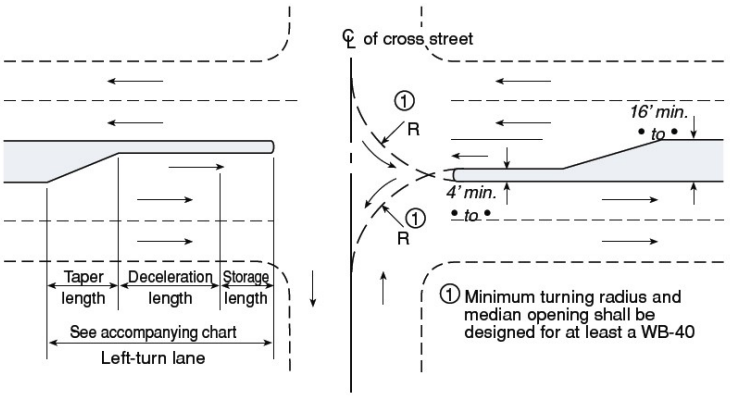
Design Speed (M.P.H.)	Taper Length (For 11’ Lane Width)	Lane Length	Total Length (Taper Length + Lane Length)
30	120’	190’	310’
35	120’	270’	390’
40	180’	380’	560’
45	180’	550’	730’
50	240’	760’	1000’

3.7.3.6. A continuous accel/decel lane may be required if the acceleration lane for one access and the deceleration lane for another access overlap or are in close proximity to each other.

3.7.3.7. The minimum pavement width for acceleration and deceleration lanes shall be eleven (11) feet, excluding gutter pan or shoulder.

3.7.3.8. Grade correction factors are required where street/road grades are steeper than three (3) percent.

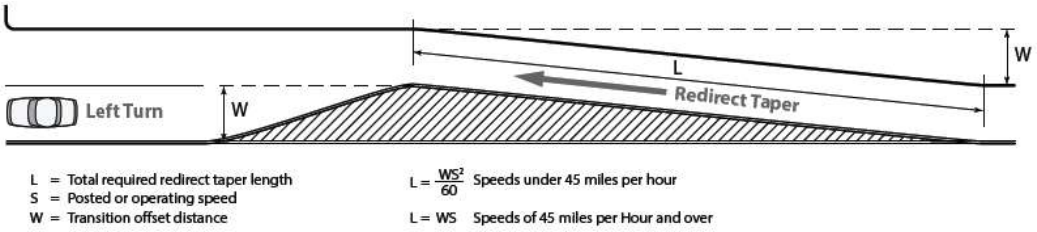
3.7.4. Left-Turn Lanes: Left-turn lanes are required at all arterial and major collector street/road intersections and at driveways on major collector/arterial streets/roads. Design of left-turn lanes shall be in accordance with the following criteria.



Left-Turn Lanes

Design Speed (M.P.H.)	Taper Length (For 11’ Lane Width)	Decel Length	Total Length
30	100’	150’	*250’
40	140’	230’	*370’
45	160’	280’	*440’
50	180’	320’	*500’

**Plus storage length*



3.7.4.1. Storage Lengths: Storage lengths for signalized and unsignalized intersections shall be determined by an approved transportation analysis or transportation study, as applicable.

3.7.4.2. Median Design: Other left-turn median designs such as reverse curve taper, offset approach nose and double left-turn lanes must be approved by Planning and Zoning and shall conform to AASHTO standards.

3.7.5. Curb Returns

3.7.5.1. The table below provides the minimum street/road intersection radii measured to flowline or edge of pavement where no curb and gutter is required.

Curb Return Radii (R) To Flowline

Intersecting Street	Principal Arterial	Minor Arterial	Major Collector	Collector	Local
Principal Arterial	Special Design*	Special Design*	40’	40’	30’
Minor Arterial	Special Design*	Special Design*	30’	30’	25’
Major Collector	40’	30’	30’	30’	25’
Collector	40’	30’	30’	25’	20’
Local	30’	25’	25’	20’	20’/15’

**Special Design should provide consideration for right turn channelization.*

3.7.5.1.1. At driveway locations where curb returns are used, the minimum radii allowed on arterials and major collectors shall be twenty-five (25) feet.

3.7.5.1.2. At driveway or private access locations where there is no curb and gutter, the minimum radii (measured to edge of pavement) allowed on arterials and major collectors shall be twenty-five (25).

3.7.5.2. The minimum elevation difference (fall) around curb returns (PCR to PCR) for flow along the curb line shall be as follows:

Radius	Minimum Fall
15’	0.3’
20’	0.4’
25’	0.5’

All Others	1.27% of length from PCR to PCR

3.7.5.3. The maximum fall around curb returns shall be equal to the steepest grade coming into or out of the return multiplied by the return length, + 0.2 feet.

3.7.5.4. Curb Return Profiles: Curb return profiles are required for radii equal to or greater than thirty (30) feet within the public Right-of-Way. A midpoint elevation along the arc length of the curb return shall be shown in plan view for radii equal to or greater than twenty-five (25) feet. Curb return design shall be set in accordance with the following design procedure. General standards for flowline control and profiles within the curb returns shall be as follows:

3.7.5.4.1. The point of tangency at each curb return shall be determined by the projected tangent grade beginning at the point of intersection (P.I.) of the flowlines.

3.7.5.4.2. The arc length and external distance of the curb return shall be computed and indicated on the drawing.

3.7.5.4.3. Show the corresponding flowline (or top of curb) grade for each roadway beyond the P.C.R.

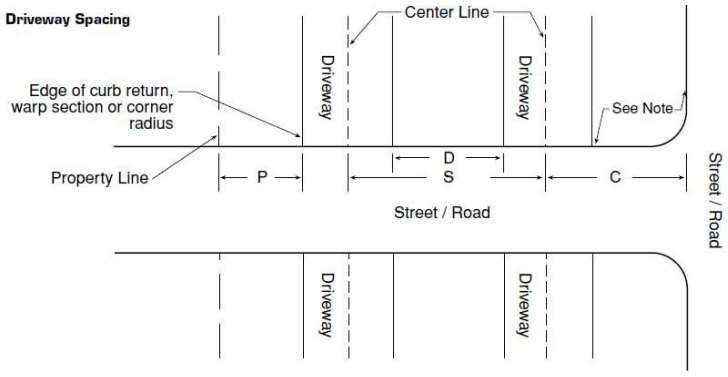
3.7.5.4.4. Design of the curb return flowline shall be such that the maximum cross slope between the midpoint of the curve and the PICR (external distance) does not exceed +5 percent. Grade breaks at the PCR's will not exceed two (2) percent for local and collector streets and one (1) percent for arterials. The flowline design of the curb return will be accomplished within the return without affecting street grades beyond the PCR. Maximum vertical curves will equal the arc length of the curb return. The elevation and location of the high or low point within the return, if applicable, is to be called out in the profile.

3.7.5.4.5. Scale for the curb return profile is 1" = 10' horizontally and 1" = 1' vertically. See Section 2.4.6.

3.7.6. Driveway Spacing

Opposing and adjacent driveway locations shall be in accordance with the following figure and table. The minimum spacing shall be increased as necessary to accommodate left turn storage bays. Offset of opposing driveway locations is not required if driveways are physically constrained to right-in, right-out.

~~NOTE: Flowline of curb/gutter or edge of asphalt if curb/gutter does not exist or edge of shoulder if asphalt does not exist.~~



NOTE: Flowline of curb/gutter or edge of asphalt if curb/gutter does not exist or edge of shoulder if asphalt does not exist.

	Figure Reference	Distance
Residential Driveways		
From property lines	P	0'
From streets/roads	C	30'

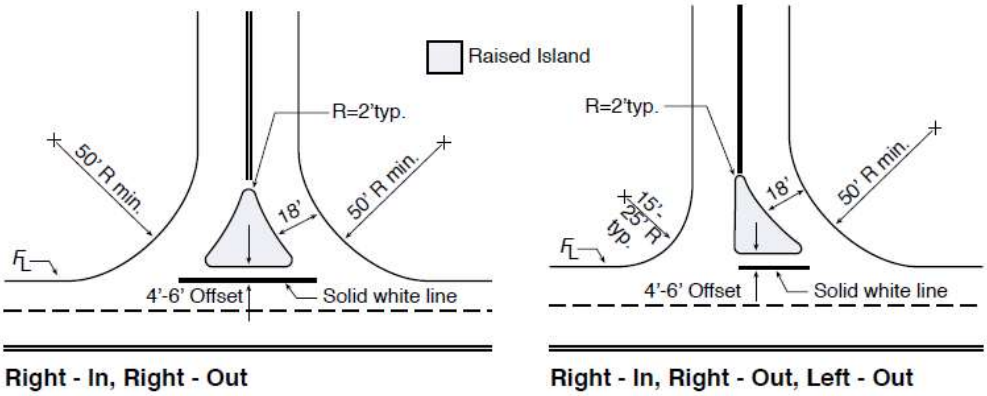
Between driveways ~~N/A~~ ~~0'~~		
On local streets/roads	D	10’
On collector streets/roads	S	80’***
On major collector/arterial streets/roads	S	325’
Non-Residential Driveways on Locals/Collectors		
From property lines	P	0’
From major collectors/arterial streets/roads	C	300’ *
From collector streets/roads	C	200’ *
From local streets/roads	C	125’
Between driveways		
30 MPH design speed	S	180’
35 MPH design speed	S	200’
Non-Residential Driveways on Major Collectors/Arterials/Parkways		
From property lines	P	0’
From streets/roads	C	500’ **
Between driveways		
40 MPH design speed	S	275’
45 MPH design speed	S	325’

** The C dimension may be reduced if approved by Planning & Zoning Division due to the existence of limiting factors. The minimum distance shall be no less than 150 feet.*

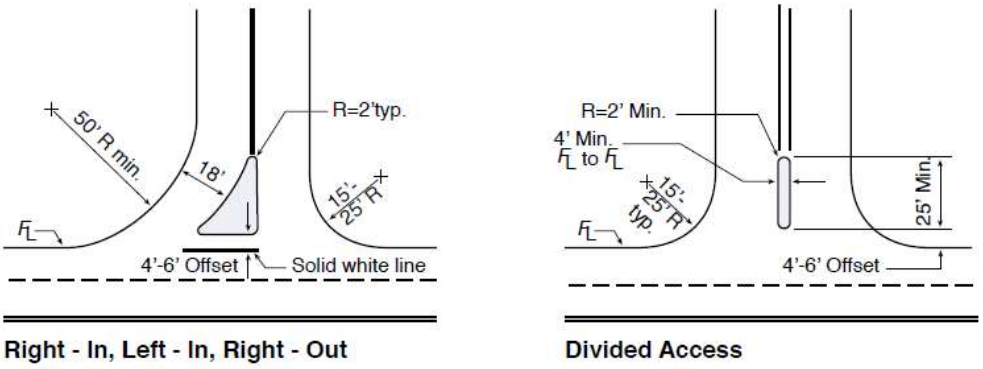
*** If the proposed driveway is restricted to right turn movements or if it is not aligned with an existing or planned left turn lane, the C dimension may be reduced if approved by Planning & Zoning Division due to the existence of limiting factors. If signalization is proposed, the minimum C distance shall be increased to 660 feet.*

****May be reduced for circular driveways or driveways with a standard hammerhead turnaround If approved by Planning and Zoning.*

3.7.7. Channelizing Islands The following figures illustrate the minimum design for channelizing islands for site accesses with various turn movement restrictions.



Right - In, Right - Out **Right - In, Right - Out, Left - Out**



Right - In, Left - In, Right - Out **Divided Access**

3.7.7.1. Non-rigid post mounted delineators are required on raised islands.

3.7.7.2. Curb ramps four (4) feet wide, with a maximum slope of 12:1, are required and shall be shown on the plans.

3.7.8. Non-Maintained Roads in County Right-of-Way, Driveways, and Private Street/Road~~s, and Non-Maintained Roads in County Right-of-Way~~ Standards.

3.7.8.1. Driveways serving one dwelling unit shall meet the following standards (Template 18a):

Exception: If the length of the driveway in the Plains is less than or equal to 50 feet, Sections 3.7.8.1.1. through 3.7.8.1.4. do not apply.

3.7.8.1.1. Curve Radius: Minimum horizontal curve radius of 30 feet at centerline or as required by the applicable Fire Protection District.

3.7.8.1.2. Width: A total width of 14 feet, including a 10-foot all-weather travel surface and two-foot shoulders on either side in accordance with Template 18a.

~~or i~~If the length of the driveway in the Mountains exceeds ~~150~~ 500 feet ~~in length~~, and is a total width of 14 feet, including a 10-foot all-weather travel surface and two-foot shoulders on either side, then pullouts shall be required at 200-foot intervals in accordance with Template 19. Due to site constraints, this 200-foot interval could be modified by 50 feet in either direction. Alternatively, if pullouts are not desired, a total width of 16 ft, including a 12-foot all-weather travel surface and two-foot shoulders on either side is ~~required in accordance with Template 18~~required.

3.7.8.1.3. Grade: Maximum grade of ten (10) percent on straight sections ~~and 12 percent grade where the dip of the natural terrain bears between South 60° East and South 45° West~~. Maximum grade of eight (8) percent for curves with radius of less than or equal to 50 feet at centerline.

Exception~~s~~: In the Mountains, a maximum grade of fifteen (15) percent on straight sections for a maximum length of one hundred (100) feet is allowed provided the appropriate fire sprinkler systems are installed per the National Fire Protection Association (NFPA) 13D or International Residential Code (IRC) P2904 - Standards for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and

Manufactured Homes. There may be more than one section up to 15% provided ~~if it is separated~~they are separated by a distance of 1000 feet. This spacing may be reduced to 300 feet provided a pullout in accordance with this Manual is provided in a break between sections. This pullout is required regardless of the road width.

~~3.7.8.1.4. If the length of the driveway in the Plains is less than or equal to 50 feet, Sections 3.7.8.1.1. through 3.7.8.1.34. do not apply.~~

3.7.8.1.~~5~~4. Turnaround: If the length of the driveway exceeds 150 feet, a hammerhead turnaround shall be provided in accordance with Template 20. ~~and the~~The location of the turnarounds ~~shall be approved by the appropriate fire protection district.~~ The centerline of the turnaround shall be located a minimum distance away from the structure. The minimum distance equals 1.5 times the height of the structure. Building height is measured as the distance between the average point between grade and the average point of the roof.

3.7.8.2. Private streets/roads serving more than one dwelling unit and non-maintained streets/road~~s~~s in county Right of Way shall meet the following standards (Templates 18b, 18c, and 18d):

3.7.8.2.1. Curve Radius: Minimum horizontal curve radius of 30 feet at centerline or as required by the applicable Fire Protection District.

3.7.8.2.2. Width (For a street/road serving up to 15 dwelling units): A total width of 20 feet, including a 16-foot all-weather travel surface and two-foot shoulders on either side in accordance with Templates 18b, 18c or 18d ~~for roads serving up to 15 dwelling units~~. Alternatively, if ~~for a private road~~ a total width of 1~~4~~6 feet, including a 1~~0~~2-foot travel~~ed~~ surface~~,~~ and two-foot shoulders on either side~~,~~ is proposed, then ~~and~~ pullouts at ~~150~~ 200 foot intervals in accordance with Template 19 are required. Due to site constraints, this 200 foot interval could be modified by 50 feet in either direction.

3.7.8.2.2.1~~3~~. Width (For a street/road serving 16 or more dwelling units or one or more non-residential units): A total width of 24 feet, including an 18-foot paved surface (plains) or all-weather surface (mountains) and three-foot shoulders on either side is required in accordance with Templates 18b, 18c, or 18d. ~~for roads serving 16 or more dwelling units or one or more non-residential units.~~

3.7.8.2.3~~4~~. Grade: Maximum grade of ten percent on straight sections~~:~~. Maximum 12 percent grade where the dip of the natural terrain bears between South 60° East and South 45° West. Maximum grade of eight percent for curves with radius of less than or equal to 50 feet at centerline.

~~Exceptions: In the Mountains,3.7.8.2.5mM, for all new dwellings the street/road serves to 500'~~

3.7.8.3. ~~Offsite~~Non-Compliant Driveways/Private Streets/Roads:

~~The appropriate fire protection district may approve alternative standards for driveways and private roads. Plans shall be submitted that bear the written approval of the appropriate fire protection district.The onsite and off-site driveway or private road shall meet the requirements as described in this secti~~If the proposed or existing driveway or private street/road cannot meet the requirements of this section, the following shall be submitted to Planning and Zoning through a relief request:

1) A signed and stamped letter/statement by a qualified Colorado-registered professional engineer indicating:

- The existing and/or proposed conditions,
- The conditions that do not meet requirements, and documentation of why the requirements cannot be met,
- Any offsite improvements that can and will be completed,
- That the existing or proposed driveway or private street/road will be able to serve the residence under normal and expected conditions and that the existing and/or proposed design is satisfactory,
- That the material and method of work offered adequately meets the intent of this section and the minimum prescriptive requirements of the applicable International Fire Code (IFC) 104.9, and
- This statement shall include a detailed explanation of how an emergency apparatus within the appropriate Fire Protection District will be able to serve the residence under normal and expected conditions. This analysis may include auto-turn or

turning radius templates. Such statement shall bear the professional engineer's seal, signature and date.

2) Plan and profile showing the existing conditions and proposed design, and

~~ and that the proposed design is satisfactory and that the material, method or work offered is, for the purpose intended, not less than the equivalent of that prescribed in this code in quality, strength, effectiveness, durability and safety and adequately meets the intent of this section and the minimum prescriptive requirements of 2018 International Fire Code (IFC) 104.9. . This statement shall include a detailed explanation of how an emergency apparatus within the appropriate Fire Protection District will be able to serve the residence. Tanalysis .~~ 3) A written statement from the property owner that a fire sprinkler system will be installed per National Fire Protection Association (NFPA) 13D or International Residential Code (IRC) P2904 at the time of Building Permit.

4) Affidavit, signed by the property owner and recorded with the County stating that the property owner acknowledges that the drive-way or street/road as proposed does not meet the requirements of the Transportation Design and Construction Manual and as a result, emergency services may be impacted. This form shall be provided by the County.

These submittal documents will be required to be reviewed and approved by Planning and Zoning prior to issuance of a building permit. Planning and Zoning may consult directly with the appropriate Fire District when evaluating ~~offsite~~ driveways or private streets/roads which cannot meet the requirements of this section.~~–~~

Prior to closeout of the land disturbance permit, as-built drawings are required.

Note: This section applies to on or offsite private driveways/streets/roads on private land and within non-maintained County Right-of-Way or platted Right-of-Way. This shall not apply to County maintained Right-of-Way.

3.7.8.4. Driveway approaches and private road intersections with public roads must comply with Standard 8 - Driveway and Private Road Approaches onto Roads.

3.7.8.5. Cattle guards shall conform to the current edition of the CDOT M&S Standard Plans and approved by the appropriate fire protection district.

3.7.8.6. All gates and entry-way structures shall be approved by the appropriate fire protection district.

3.7.8.7. All streets in the Plains are required to be paved.

3.7.8.8. All rules and regulations of the applicable Fire Protection District shall govern unless less restrictive than the requirements of this Manual.

3.7.8.9 All culverts, bridges and other conveying structures shall meet loading requirements for the heaviest fire apparatus potentially serving the residence(s). Maximum capacity of any bridge or culvert with a span larger than 4 feet shall be posted on signs at both approaches for through roads and at the entrance for cul-de-sacs.

3.8. Drainage

All storm drainage systems shall be designed in accordance with Jefferson County Storm Drainage Design and Technical Criteria (JCSDDTC). Safe and efficient conveyance of traffic is the primary function of streets/roads; therefore, design of the storm drainage function shall not exceed the limits (such as gutter capacity and street overtopping) set forth in the JCSDDTC. All new or repaired storm sewer pipe and associated structures within County Right-of-Way and/or easements shall be constructed with trace wire and test locations. Installation shall be tested for operation and documented with Form Letter "T", in accordance with Jefferson County Land Development Regulation Section 33.

3.8.1. Crosspans: Crosspans are not permitted across collector or arterial streets, nor are they allowed on streets with existing storm sewer systems. Crosspans may be used parallel to collector or arterial streets to convey storm runoff across local streets.

3.8.2. Inlets: Inlets shall be located to intercept gutter flow at the point gutter capacity is exceeded by the storm runoff (see Chapter 9

of the JCSDDTC for gutter capacity). Inlets shall also be installed to intercept cross-pavement flows at points of transition in superelevation. Due to the presence of curb ramps at intersections, inlets are not allowed within the curb return, but shall be located at the tangent points of the curb return.

3.8.3. Cross Slope: Except at intersections, or where superelevation is required, streets/roads shall be level from top of curb to top of curb (or flowline to flowline) and shall have a two (2) percent crown. At or within 150' of an intersection, the maximum elevation difference between flowlines is that dictated by the intersection grade (Section 3.5.2.) and the actual distance between flowlines.

3.8.3.1. Parabolic or curved crowns are not allowed. In no case shall the pavement cross slope at warped intersections exceed the grade of the through street.

3.8.3.2. Carrying the crown at a side street into the through street is permitted only when drainage considerations warrant such a design.

3.8.3.3. The rate of change in pavement cross slope, when warping side streets at intersections, shall not exceed one (1) percent every twenty-five (25) feet horizontally on local streets/roads, one (1) percent every thirty-seven and one-half (37.5) feet horizontally on collector streets/roads, or one (1) percent every fifty-six and one-half (56.5) feet horizontally on arterial streets/roads.

3.8.4. Temporary Erosion Control: Temporary erosion control is required along and at the ends of all roadways that are not completed due to project phasing, subdivision boundaries, etc., in accordance with the Jefferson County Zoning Resolution, Section 15.

3.8.5. Cross Culverts: Cross culverts shall be installed at locations where roads cross natural drainageways and/or where changes in road grade are greater than two (2) percent. The culvert slope shall match as nearly as possible that of the existing topography, but shall in no case be less than one (1.0) percent. Cross culverts for roads shall be spaced a maximum of five hundred (500) feet apart.

3.9. Traffic Control

3.9.1. Construction Traffic Control: Traffic safety in construction zones should be an integral element of every project from planning through design and construction. Pedestrian, as well as vehicular traffic, should be considered in the design of a traffic control plan. A traffic control plan shall be submitted to and approved by Transportation and Engineering prior to issuance of a construction permit.

Design of all traffic control plans shall be in accordance with Part VI of the Manual on Uniform Traffic Control Devices, Standards for Work Zone Traffic Control. All necessary signs, pavement markings, barricades, etc. shall be shown on the plan.

3.9.2. Traffic Signals: Traffic signals shall be installed at street/road intersections or site accesses identified as meeting warrants in the traffic study submitted for a proposed development. If the proposed signal location is within twelve hundred (1,200) feet of any adjacent signal, a two-way progression analysis shall be included in the traffic study.

Design of all traffic signals shall be in accordance with the Manual on Uniform Traffic Control Devices and the Colorado Department of Transportation Standards and Specifications. Traffic signal plans shall be submitted to and approved by Planning and Zoning.

Traffic signal poles shall not be installed within sidewalks or curb ramps.

3.9.3. Signing and Striping: Plans are required for signing/ striping of new streets/roads and re-signing/striping of existing streets/roads necessitated by development. All signing/striping plans shall be in accordance with the Manual on Uniform Traffic Control Devices (MUTCD) and shall be submitted as part of the construction plans.

3.9.3.1. The signing plan shall:

1. Show the general longitudinal location of each existing and proposed sign (by side of street/road and station).
2. Specify the sign legend and sign type (from the MUTCD).
3. Specify the sign size.
4. Include a typical detail of installation dimensions (height, distance from curb or edge of pavement).
5. Include a detail of post and base dimensions and installation plan (showing any wedges or sleeves, depth below surface, any

materials used).

6. Specify the blank gauge and material of the sign(s).

7. Note the reflectorization provided.

3.9.3.2. The striping plan shall show:

1. Striping material (paint, thermoplastic, preformed tape, etc.).

2. Color designation and line width.

3. Lane width.

4. Proposed and existing lane striping including skip interval.

5. Typical treatments for accel/decel lanes, turning lanes, bike lanes and crosswalks.

3.9.3.1. Stop signs shall be placed at intersections in accordance with the MUTCD, unless otherwise approved by the Director of Planning and Zoning.

3.9.3.2. All street/road name signs shall be in accordance with the current edition of DRCOG "Guidelines for the Design and Placement of Street Signs in the Denver Region".

3.10. Miscellaneous

3.10.1. Guardrail: In locations where guardrail is required, as determined by Planning and Zoning, design shall be in accordance with the Colorado Department of Transportation Standards and Specifications. Determination of guardrail requirements shall be based on Colorado Department of Transportation Roadway Design ~~Manual~~Guide, ~~Section 702~~Chapter 20 and other applicable CDOT criteria. Guardrail locations shall be shown on the construction plans.

3.10.2. Noise Attenuation: In locations where arterial streets/roads are adjacent to existing or planned residential areas, fencing and/or other noise attenuation measures are required. These measures may include, but are not limited to, earth beams, landscaping, walls, or a combination.

3.10.3. Street Lighting: Street lights shall be provided at all parkway/arterial/major collector street/road intersections. In addition, street lights shall be provided at all locations where multifamily residential, commercial or industrial site driveways intersect parkway/arterial/major collector streets/roads. Street lights shall be designed in accordance with the most recent ANTI/ICES Roadway Lighting Standards and installed in accordance with Public Service Company of Colorado standards. Light poles shall not be installed within sidewalks or curb ramps.

3.10.4. Roundabouts: Roundabouts may be constructed subject to an approved traffic study. Roundabouts shall be designed in accordance with the current edition of the Federal Highways Administration Publication, Roundabouts: An Informational Guide, and approved by Transportation and Engineering and the appropriate fire protection district. Roundabouts shall also conform to CDOT Roadway Design Guide Chapter 19.

3.10.5. Bridges: Bridges shall be designed in accordance with CDOT Bridge Manuals, the CDOT Roadway Design Guide Chapter 15 and approved by Transportation and Engineering and the appropriate fire protection district.

3.10.6. Curb Extensions (mid-block and corner) and Pedestrian Refuge Islands: Curb extensions and pedestrian refuge islands shall be designed in accordance with the current version of the Federal Highway Administration Bicycle and Pedestrian Report, the CDOT Roadway Design Guide Chapters 12 and 14 and approved by Transportation and Engineering and the appropriate fire protection district.

Chapter 4

Pavement Design and Technical Criteria

4.1. General

This section sets forth the minimum criteria and design procedures for public ~~and private~~ street/roadway pavements. Recommended design methodologies for asphalt are addressed and essentially follow the Colorado Department of Transportation (CDOT) and the Asphalt Institute methodology. Some standardization of criteria has been made in design procedures. Other design methodologies may be presented for comparison to the current County design method. For private streets and non-maintained streets/roads in County Right-of-Way these same design methodologies are required.

4.2. Pavement Design Report Submittal

4.2.1 Preliminary Pavement Design: A Preliminary Pavement Design shall be used for estimating purposes only to determine the financial security "Exhibit A" associated with development projects. Three standardized Preliminary Pavement Designs corresponding to three zones of unique geotechnical characteristics within Jefferson County are presented in Construction Standards ~~16~~22-~~18~~24. Construction Standard ~~19~~-25 shows each of the three zones. Zone 1 corresponds with materials associated with ~~decomposing granite~~fractured crystalline rock in the higher elevation foothills and mountains. Zone 2 addresses highly expansive clay and claystone material within the Designated Dipping Bedrock Area. The template for this zone includes edge drains for public and private streets. The inclusion of edge drains should be evaluated as a part of the preliminary and final pavement design and edge drain design and details shall be provided with the Street Construction Plans. Final pavement design modifications presented by the applicant, including changes to or elimination of edge drains, may be allowed as determined appropriate by Transportation and Engineering for public streets and Planning and Zoning for private streets. The evaluation of the edge drains in the pavement design and approval of an alternative standard shall be made based on data provided by the Geotechnical Engineer and evaluation by the County. ~~with edge drains.~~ Zone 3 involves non-cohesive soil and weathered bedrock along the Front Range. The Preliminary Pavement Design shall be replaced with the Final Pavement Design, and the associated "Exhibit A" financial security costs recalculated, after County approval of the Final Pavement Design Report.

4.2.2 Final Pavement Design:

The final pavement design shall be completed and submitted after or in conjunction with County approval of the associated construction plans. All soil samples must be taken after overlot grading, or represent the "as-constructed" soil conditions after construction has been completed. Pavement design approval is required prior to placement of any concrete flatwork and/or paving within County Right-of-Way.

The report shall be prepared by or under the supervision of and signed by a Professional Engineer registered in the State of Colorado and shall include the following information:

A. Vicinity map to locate the investigated area.

B. Scaled drawings showing the location of borings, and required information stated in 4.3.2.

C. Scaled drawings showing the estimated extent of subgrade soil types and Equivalent Daily Load Application (EDLA) for each street.

D. Pavement design alternatives for each street on a scaled drawing.

E. Tabular listing of Sample Designation, Sample Depth, Composite Group Number, Liquid Limit, Plasticity Index, Percent Passing the No. 200 sieve, American Association of State Highway and Transportation Officials (AASHTO) Classification, Group Index, Percent Swell from Swell Consolidation tests, and Soil Description.

F. California Bearing Ratio (CBR) or R-value test results and calculations for each soil type used in the design. Include natural moisture content and natural density.

G. Pavement design nomographs supplied by Jefferson County properly drawn to show Soil Support, EDLA and Structural Number (SN).

H. Design calculations for pavement thickness.

I. Percentage water soluble sulfates, sampled at a minimum of every other boring.

J. A discussion regarding potential subgrade soil problems including, but not limited to:

1. heave or settlement prone soils
2. frost susceptible soils
3. ground water
4. drainage considerations (surface and subsurface)
5. cold weather construction (if appropriate)
6. other factors or properties which could affect the design or performance of the pavement system

K. Recommendations to alleviate or mitigate the impact of problems discussed in Item J above.

4.3. Subgrade Investigation

4.3.1 Field Investigation: The field investigation shall consist of boring soils to a depth of at least five feet below the bottom of the proposed asphalt pavement layer elevation for roads classified as Local or Collector. Borings shall extend 10 feet below the bottom of the proposed asphalt pavement layer elevation on Major Collector / Minor Arterial and Major Arterial roadways. In all cases borings shall be spaced no more than 250 feet apart, or a minimum of one boring for each section of street, unless otherwise required by Transportation and Engineering. The borings shall be checked for ground water at the time of drilling, and then 24-hours after the borings are completed. Samples shall be taken after overlot grading is completed and the subgrade is "rough cut" (1 to 2 feet of proposed elevation). Soil classifications shall be verified after installation of utilities.

Geological features within five feet of the existing ground surface, and all new roadways proposed in the Dipping Bedrock Area, require more detailed investigation including drilling and/or trenching. Every third bore hole shall be a minimum of 10 feet deep, regardless of the road classification.

California Drive samples shall be obtained from each boring within 12-18 inches of the final subgrade elevation.

4.3.2. Boring Profiles: Boring logs shall include the following:

a. Date, Strata Elevations, Depth of Boring.

b. Natural moisture content, Blow Count and Dry Density of each undisturbed sample.

c. Water table elevation.

4.3.3. Classification Testing: Each soil sample shall be tested according to AASHTO and/or the American Society for Testing Materials (ASTM) criteria to determine: Liquid Limit, Plastic Limit, Plasticity Index, and Percentage passing the U.S. Standard No. 200 sieve. Samples of sands and gravels shall require gradation analysis for classification determination.

These data shall be determined using the following methods:

a. Liquid Limit - AASHTO T 89 (ASTM D 4318)

b. Plastic Limit - AASHTO T 90 (ASTM D 4318)

c. Passing No. 200 - AASHTO T 11 (ASTM C 117)

d. Gradation - AASHTO T 27 (ASTM D 422)

The results of these tests shall be used to calculate the AASHTO Classification and Group Index using AASHTO M 145.

4.3.4. Soil Grouping: Soil samples collected in the field investigation can be combined to form soil groups. These groups shall be based upon the AASHTO Classification, Group Index and location within the area investigated. Groupings shall not consist of samples with different AASHTO Classifications (Note: There may be more than one group index within a given classification). Composite samples can be manufactured by combining representative, equal portions of each sample contained within the group and mixing to provide a uniform composite sample of the soil group. This shall be limited to group indices within the range of 7. Composite samples shall be subjected to Classification Testing as outlined in Section 4.3.3. Moisture-Density curves must be included for groups used in the design.

4.3.5. Subbase Support Testing: Individual subbase or composite samples shall be tested to determine the support value using either CBR (California Bearing Ratio) or Hveem Stabilometer (R-value) testing. These values shall be used in the design of pavement sections in accordance with the procedures outlined in Section 4.5. Tests shall be conducted in accordance with the following procedures:

4.3.5.1. CBR Tests: California Bearing Ratio tests shall be conducted in accordance with AASHTO T 193 with the following modifications:

a. Note 4 of AASHTO T 193 shall not apply. A 3- point CBR evaluation is required.

b. The compaction method used for the CBR test shall be determined by the soil classification.

c. Surcharge shall be calculated using a unit weight of 140 pcf for bituminous pavement and 135 pcf for untreated aggregate base course.

d. The design CBR value shall be determined from the CBR - Dry Density Curve and shall be the CBR value at 95 percent compaction.

e. In addition to the values requested in AASHTO T 193, Stress-Penetration curves for each sample, a CBR - Dry Density curve and Proctor Compaction test results shall be reported.

4.3.5.2. R-Value Tests: Hveem Stabilometer tests shall be conducted in accordance with AASHTO T 190. The design R-value shall be at 300 psi exudation pressure. The reported data shall consist of:

a. Dry density and moisture content for each sample.

b. Expansion pressure for each sample.

c. Exudation Pressure - corrected R-value curve showing the 300 psi design R-value.

4.4. Pavement Design Criteria

This section sets forth the parametric input data to be used for the design of pavements of various roadway classifications. If cohesive soil mitigation is required, the soil treatment shall extend from back of sidewalk to back of sidewalk.

4.4.1. Equivalent (18 Kip) Daily Load Applications (EDLA): The pavement design procedure in this chapter is intended to provide for a 20-year service life of pavement, given that normal maintenance is provided to keep roadway surface in an acceptable condition. EDLA and Design Traffic Number (DTN) are considered equivalent units based on 20-year design criteria and an 18 kip axle loading. All data and design nomographs in this chapter use EDLA units for pavement loading repetitions. Calculations shall be included, where applicable.

EDLA criteria for each Jefferson County roadway classification are given in Table 4.1.

Table 4.1 Recommended Equivalent (18 Kip) - Daily Load Applications (EDLA)

Classification	Class Modifier	EDLA Values
Local	Serving <50 D.U.	8
	Serving >50 D.U.	10
Collector	Residential	30
	Other	100

Major Collector/Minor Arterial	All	200
Principal Arterial	All	200

NOTE: Alternative EDLA values may be considered with justification provided by the Transportation Study, proposed land uses, and traffic analysis that defines proportion of truck vehicles, including construction truck traffic.

4.4.2. Design Serviceability: The following criteria shall be used for all Jefferson County roadways to be dedicated for public use and for all private street/roads and non-maintained streets/roads in County ROW:

Table 4.2 Serviceability Index

Roadway Classification	SI
Arterials	2.5
Collectors	2.5
Local	2.0

4.4.3. Minimum Pavement Layers: This paragraph provides the minimum acceptable pavement layers for public roadways in Jefferson County and for all private street/roads and non-maintained streets/roads in County ROW. These pavement layer thicknesses may be used for preliminary planning purposes. Final pavement designs must be based on actual subbase support test results. Table 4.3 lists these minimum thicknesses for each roadway classification.

Table 4.3 Minimum Pavement Sections

Road Classification	EDLA	Composite Section (inches)			Full Depth Asphalt (inches)
		Asphalt	Subbase		
			Base Course	Stabilized	
<50 D.U.	8	4	6	12	5
=>50 D.U.	10	4	6	12	5
Residential	30	4	6	12	5
Other	100	5	6	12	6
Major Collector	200	5	6	12	7
Minor Arterial	200	5	6	12	7
Major Arterial	200	5	6	12	8

Regardless of the pavement layer design, all soils with an R-value less than 10, or PI greater than 15, shall be stabilized to a minimum of 12 inches below the bottom of the asphalt pavement layer, and shall be included in the depth of treatment.

Cohesive soil subbases shall be overexcavated and replaced with moisture conditioned fill. Minimum requirements for overexcavation are listed below in Table 4.3a.

Table 4.3a Minimum Overexcavation Requirement for Cohesive Soils

Plasticity Index	Depth of Overburden/Fill Treatment	
	Locals/Collectors	Major Collectors/Arterials
15-20	1 foot	2 feet
21-30	2 feet	3 feet

31-40	3 feet	4 feet

NOTES:

1. Road segments with isolated soil types may be designed separately for that individual segment.

2. Soil with (PI) over 40 shall be removed and wasted to a depth of five feet for any type of street.

3. In the Designated Dipping Bedrock Area, all bedrock shall be overexcavated to a depth of at least five (5) feet below the bottom of the proposed pavement layer. Where the bedrock is claystone, the top of the weathered claystone shall be considered as the top of bedrock. Should soil other than bedrock be found throughout the five (5) foot zone, it shall be overexcavated as shown in Table 4.3a.

4. The overexcavation areas shall be recompacted to 95% of maximum Standard Proctor Density (ASTM D-698) at 0 to +4% above optimum moisture content,. There shall be a minimum of 12 inches of soil stabilization below the bottom of the asphalt layer that is included in the total depth of overexcavation.

5. Overexcavation of overburden/fill below the stabilization section may be waived by Transportation and Engineering in areas where either previous overexcavation work during overlot grading has been validated or in cases where a thorough geotechnical investigation determines overexcavation is not warranted. Previous overexcavation work must be validated by compaction reports provided by the developer's geotechnical firm and in accordance with the Land Development Regulation (LDR).

4.4.4. Flexible Pavement Strength Coefficients: Table 4.4. contains standard design coefficients for various pavement materials. Non-standard design coefficients may be used only if approved in advance by Transportation and Engineering. In addition, design values must be verified by predesign mix test data and supported by daily construction tests; or, redesign values will be required.

Table 4.4 Strength Coefficients

Pavement Structure Component*	Strength Coefficients	(Limiting Test Criteria)
Conventional Materials		
Hot Mix Asphalt	0.40	1800 Lbs. Marshall Or R 90+)
Exist. Asphalt Pavement	0.30	(9-15 Yr)
	0.24	(>15 Yr)
Aggregate Base Course	0.12	(Cbr 80+ Or R 78+)
Exist. Aggregate Base Course	0.10	(Cbr 50+ Or R 69+)
Granular Subbase Course	0.07	(Cbr 15 Or R 50+)
Treated Materials		
Cement Treated Aggregate Base	0.23	(7 day, 650-1000 psi)
Lime Stabilized Subbase	0.14	(PI.<6, net swell <.5%, PH >12.3) Compressive Strength >/200 psi, per ASTM 5102-04, Procedure B
All Stabilized Subbase	0.14	Compressive Strength >/200 psi, per ASTM 5102-04, Procedure B

** The combination of one or more of the following courses placed on a subgrade to support the traffic load and distribute it to the roadbed.*

Structural Layers of a conventional flexible pavement design are defined below.

a) Surface Course: One or more layers of a pavement structure designed to accommodate the traffic load, the top layer of which resists skidding, traffic abrasion, and the disintegrating effects of climate. The top layer is sometimes called "Wearing Course.".

b) Base Course: The layer or layers of specified or selected material of designed thickness placed on a subbase or a subgrade to support a surface course. The use of base course is not accepted in areas that base course does not adequately drain from roadway system.

c) Subbase: The layer or layers of specified or selected material of designed thickness placed on a subgrade to support a base course, surface course or both.

d) Subgrade: Prepared and compacted soil extending to such a depth as to affect the structural design.

4.5. Pavement Design Procedure

4.5.1. Flexible Pavements: The following procedure should be used in determining the Structural Number (SN) of the pavement being designed:

4.5.1.1. Using the appropriate roadway classification, determine the corresponding EDLA (Table 4.1).

4.5.1.2. Determine the Serviceability Index (SI) of the roadway classification (Table 4.2).

4.5.1.3. Select the proper nomograph:

Example: Figure 4.1 Flexible Pavements with SI = 2.0

Example: Figure 4.2 Flexible Pavements with SI = 2.5

NOTE: Original nomographs required are available from Transportation and Engineering.

4.5.1.4. Using subgrade CBR or R-Value test results and EDLA, determine the SN from the appropriate design nomograph.

4.5.1.5. Once the Structural Number (SN) has been determined, the design thicknesses of the pavement structure can be determined by the general equation:

$SN = a1D1 + a2D2 + a3D3 + ...$

where

a1 = Hot Mix Asphalt (HMA) strength coefficients

a2, a3, an = strength coefficients of additional pavement components

D1 = thickness of Hot Mix Asphalt (HMA) (inches)

D2, D3, Dn = thickness of additional pavement component sections

The strength coefficients for various components of the pavement structure are given in Table 4.4.

The component thickness selected must meet two conditions:

a. Total HMA thickness selected cannot be less than the minimum specified in Table 4.3. for the roadway classification.

b. The base course thickness selected cannot exceed 2.5 times the HMA thickness selected, with a maximum thickness of eight (8) inches.

4.5.1.6. The design must reference any mitigative measures required when the subbase and / or subgrade contains cohesive or expansive soils. Design reports recommending permeable layers such as untreated aggregate base course in the pavement system, must present the measures to be used to ensure adequate drainage of such layers, and to maintain segregation of the layers from the fine-grained soils. If cohesive or expansive soil mitigation is required, the soil stabilization shall extend from back of sidewalk to back of sidewalk. It is required that soils with R-values less than 10 or Plasticity Index greater than 15 be stabilized. Stabilization is for a minimum of the upper twelve (12) inches below the bottom asphalt pavement layer, and shall be included in the depth of treatment.

4.5.2 Rigid Pavements: This procedure has been deleted.

4.6. Material Specifications

The Specifications presented in this section are performance oriented. The County's objective in setting forth these Specifications is to achieve an acceptable quality of roadway structures. All sources for the mined or manufactured materials must be annually approved by Transportation and Engineering as having met the appropriate materials performance specifications. This approval is a condition of using those material sources for public improvement construction. For the purpose of these Standards, public improvements are all roadway improvements (both public and private), sidewalks, curbs and gutters, appurtenant drainage basins or structures, storm sewer and their access ways, other public works within Jefferson County Right-of-Way, and required stormwater detention structures built on private property and maintained by the property owner(s).

4.6.1. Violations of Approval Conditions

4.6.1.1. Random Testing. Transportation and Engineering may order random tests of materials used in County public improvements and for all private street/roads and non-maintained streets/roads in County ROW to verify compliance with material specifications. These tests are in addition to the requirements of the roadway inspection and testing procedures.

4.6.1.2. Any and all material used to construct public improvements that is not from a certified source, or that is from a certified source and fails one or more random material test, may be subject to complete removal as a condition of County acceptance of that public improvement. Additional tests will be required to confirm the existence and extent of the sub-standard material prior to the initiation of remedial action. The extent of the material to be removed will be at the discretion of Transportation and Engineering.

4.6.2. Use of Materials Not Listed in Section 4.6. Materials in this section and provided with a set of specifications are those deemed to be the primary structural materials commonly or typically used in public improvements. Ancillary public improvement materials such as manufactured paints and coatings, bonding agents, sealers, fabrics or gaskets, insulating materials, etc., should be in compliance with CDOT material specifications for the appropriate material employed. Alternative materials for construction may be proposed for use. Decisions on acceptability of alternative materials will be made by Transportation and Engineering.

4.6.3. Material Specifications

4.6.3.1. Hot Mix Asphalt: This shall comply with material specifications for PG Binders and asphalt mixes in accordance with CDOT's most recent edition of Standard Specifications for Road and Bridge Construction, 702 and 703. This is hereby referred to as "CDOT Standard Specifications".

4.6.3.2. Stone Mastic Asphalt (SMA): SMA mix shall comply with CDOT Standard Specifications as referenced in Section 4.6.3.1. SMA shall be placed as a 2-inch top lift on all new arterial and collector roads and streets. Local roads and streets may be constructed with all HMA. New acceleration and deceleration lanes added to existing arterials or collectors shall match the existing asphalt mix, whether HMA or SMA.

4.6.3.~~2~~3. Aggregate Base Course Material. This material shall consist of hard, durable particles or fragments of stone or gravel, crushed to required sizes, containing an appropriate quantity of sand or other finely-divided mineral matter which conforms to the requirements of AASHTO M 147, and to Section 703.03, CDOT Standard Specifications.

Specifications. In addition, the material must have an R-value of 78 or greater, or a CBR of 80+, and must be moisture stabilized. Moisture stability is determined by R-value testing which shows a drop of 12 points or less in R-value between exudation pressures of 300 psi and 100 psi.

Only aggregate from sources approved by the Transportation and Engineering shall be used.

Table 4.5 Aggregate Base Course Materials

Sieve Size	Mass Percent Passing Square Mesh Sieves	
	Class 5	Class 6
2”	100	
1”	95 - 100	100
3/4”	—	95
#4	30 - 70	30 - 65**
#8	—	25 - 55
#200*	03 - 15	03 - 12**

Liquid Limit (LL)	30 Max.	30 Max.

**ASTM (C117)*

***For gravel shoulders, No. 200 shall be 9-12 and No. 4 shall be 30-50.*

Base course may be used only where the base can daylight in barrow ditches or where the subgrade consists of material classifying as GM, GW, GP, SM, SW, or SP using the Unified Soil Classification System.

4.6.3.~~3~~4. Cement Treated Aggregate Base Course. This material shall consist of a mixture of aggregate materials, Portland cement and water as outlined in Section 304 of the CDOT Standard Specifications. Acceptable aggregates include CDOT Classes 5 and 6. Other aggregates may be used, if previously approved by Transportation and Engineering.

The materials to be used in construction shall be tested and a mix design submitted to the Transportation and Engineering. As a minimum, the mix design report shall contain a description of material sources, gradations and Atterberg limits of aggregates, cement type, Proctor compaction curves and unconfined compressive strength results for each mix, strength versus cement content curves, a design mix and special construction procedures recommended. Testing shall be in accordance with appropriate AASHTO specifications. Minimum in-place thickness for cement treated aggregate base course shall be twelve (12) inches.

To be approved, the mix shall have a seven-day compressive strength of at least 650 psi and no more than 1,000 psi. The minimum acceptable cement content shall be five percent by weight. Only mix designs approved by Transportation and Engineering shall be used. Approvals are required on a project basis, or an annual basis for suppliers, prior to issuing construction permits.

4.6.3.~~4~~5. Lime Treated Subgrade: This Material consists of a mixture of native or imported soils, hydrated or quick lime and water as outlined by ASTM Specification C977, CDOT Standard Specification 307.

The materials to be used in construction shall be tested and a mix design submitted to Transportation and Engineering for approval. As a minimum, the mix design report shall contain a description of material sources, gradation and Atterberg limits of native soils, Atterberg limits, pH and five day, 100°F cure unconfined compressive test results for each mix, strength versus lime content curves, a design mix and special construction procedures recommended. Testing shall be in accordance with appropriate AASHTO methods.

To be approved, the mix shall meet the following requirements:

1. Minimum pH of 12.3 after completion of initial mixing.
2. Plasticity Index less than 6, per ASTM D4318.
3. Minimum hydrated lime of 5.0% dry weight, per ASTM D3.
4. Minimum unconfined compressive strength shall be 200 psi, per ASTM D1633.
5. Sulfate concentrations not to exceed .5%

Note: Field validation shall be required after soil blending occurs during construction.

Only mix designs approved by Transportation and Engineering shall be used. Approvals are required on a project basis prior to issuing construction permits. Minimum in-place thickness for this material shall be twelve (12) inches.

4.6.3.~~5~~6. Lime/Fly-Ash Stabilized: This material consists of a mixture of native or imported soils, hydrated or quick lime, Class "C" Fly-Ash, and water as outlined by ASTM Specification C977, CDOT Section 307.

The materials to be used in construction shall be tested and a mix design submitted to the Transportation and Engineering for approval. As a minimum, the mix design report shall contain a description of material sources, gradation and Atterberg limits of native soils, Atterberg limits, pH and five-day unconfined compressive test results for each mix, strength versus lime/fly-ash content curves, a design mix and special construction procedures recommended. Testing shall be in accordance with appropriate AASHTO methods.

To be approved, the mix shall meet the following requirements:

1. Plasticity Index less than 6, per ASTM D4318.

2. Minimum unconfined compressive strength shall be 200 psi, per ASTM D1633.

3. Sulfate concentrations not to exceed .5%.

NOTE: Field validation may be required after soil blending occurs during construction.

Only mix designs approved by Transportation and Engineering shall be used. Approvals are required on a project basis prior to issuing construction permits. Minimum in-place thickness for this material shall be twelve (12) inches.

4.6.3.~~6~~7. Cement Stabilized Subgrade. This material consists of a mixture of native or imported soils, Portland cement and water.

The materials to be used on construction shall be tested and a mix design submitted to Transportation and Engineering for approval. As a minimum, the mix design report shall contain a description of material sources, gradation and Atterberg limits of native soils, Atterberg limits, pH and five-day unconfined compressive test results for each mix, strength versus cement content curves, a design mix and special construction procedures recommended. Testing shall be in accordance with appropriate AASHTO methods.

To be approved, the mix shall meet the following requirements:

1. Minimum Portland cement of 3.0% dry weight per ASTM D3.

2. Minimum unconfined compressive strength shall be 200 psi, per ASTM D1633.

3. Sulfate concentrations not to exceed 0.5%.

NOTE: Field validation may be required after soil blending occurs during construction.

Only mix designs approved by Transportation and Engineering shall be used. Approvals are required on a project basis prior to issuing construction permits. Minimum in-place thickness for this material shall be twelve (12) inches.

Chapter 5

Construction Specifications and Standards

5.1 Construction Specifications

The Permittee agrees to adhere to all construction specifications set forth in the latest edition of the Jefferson County Land Development Regulation, the Jefferson County Transportation Design and Construction Manual and the Colorado Department of Transportation (CDOT) Standard Specifications for Road and Bridge Construction manuals.

5.1.1. Permits: All work performed within County Rights-of-Way and/or easements shall require the issuance of a street/road construction permit. Permits shall be obtained at the Jefferson County Transportation and Engineering office, located at 100 Jefferson County Parkway, Suite 3500, Golden, Colorado.

5.1.1.1. Any permit issued shall pertain only to construction within the County-owned Right-of-Way and is in no way considered a permit to enter on any private property adjacent to such Right-of-Way nor to alter or disturb any facilities or installations existing within the Right-of-Way which may have been installed, and are owned, by others.

5.1.1.2. Permits, when issued, shall be valid for a period of ninety (90) calendar days, and may be renewed for one (1) additional ninety (90) calendar day period, providing the renewal is obtained (renewal may be obtained by telephone) prior to the permit expiration date. Failure to obtain a renewal as stated herein will require obtaining a new permit and payment of applicable fees.

5.1.1.3. Any permit determined to be without an adequate bond as required in Section 5.1.2. below, shall be subject to immediate revocation by Transportation and Engineering.

5.1.2. Bonds: A non-cancellable permit bond shall be required for Right-of-Way Use and Construction Permits and License Agreements

Section of the County Policies and Procedures for Streets and Roads.

5.1.3. General Specifications:

5.1.3.1. Any work done to a street/road or other County property under a permit shall result in the street/road or other property being returned to a condition equal to or better than original, within the limits of careful, diligent workmanship, good planning, and quality materials, with said work being accomplished in the least possible time and with the least disturbance to the normal functioning of the street/road or other property.

5.1.3.2. All backfill material, compaction, and resurfacing of any excavation made in the County property shall be done in accordance with specifications and standards approved by and on file with Transportation and Engineering.

5.1.4. Road Closures: Normally, only one side of a public street/road may be blocked at any given time. Should operating conditions require complete closure, advance approval of the closing of a public street/road must be obtained from Transportation and Engineering or advance approval of the closing of a private road must be obtained from Planning and Zoning. The permittee shall notify the appropriate fire protection district, the Jefferson County Sheriff's Department, and the Colorado State Patrol concerning exact location of barricades and dates traffic will be impeded. Barricades shall be maintained by the responsible contractor.

5.1.5. Utility Installations:

5.1.5.1. Underground: All utility lines, including Cable TV, shall be installed a minimum of two (2) feet below ground surface, or proposed roadway elevation, whichever is lower. This requirement is applicable throughout the Right-of-Way, including ditch lines and/or borrow pits. Exceptions may be granted by Transportation and Engineering where warranted and upon prior written request and approval.

5.1.5.2. Overhead: A minimum ground clearance of 18 feet 0 inches shall be provided where overhead utility lines cross public roads and streets. The clearance shall be measured at the lowest point where the line crosses the traveled portion of the road and/or street.

5.1.6. Base Course: All aggregate base course shall meet CDOT Class 6 Specifications, or an acceptable base course predicated on specific site conditions as approved by Transportation and Engineering. Native material is unacceptable as base course.

5.1.7. All concrete shall be in conformance with the appropriate class as specified in Section 601 of the CDOT Standard Specifications. A combination cure-sealer shall be used for concrete flatwork. Provide adequate texture by means of a moderately heavy broom finish to surfaces prior to applying the cure-sealer. The product shall be Dayton Superior Cure &Seal LV 25% J20 UV or approved equal. Apply two coats per manufacturer's instructions to all exposed surfaces, with the second coat applied at right angles to the first for complete coverage. The temperature range of application is 35 to 90 degrees F. Concrete shall not be left exposed for more than one hour between the time finishing is completed and commencement of curing treatment.

5.1.7.1. Concrete may be placed by machine methods provided that all finish lines are within 1/8" ± tolerance of the lines shown on the plans. The flowline must be free draining.

5.1.7.2. One-half (1/2) inch expansion joint material shall be installed when abutting any existing concrete or a fixed structure.

5.1.7.3 Median Cover Material and Median Edging Patterned Concrete: Median cover material and median edging patterned concrete shall be colored concrete that is Davis color #5084 "Harvest Gold" or approved equal. The release agent shall be Concrete Coatings Stamp-TEK ™ liquid release or approved equal. The stamp pattern shall be Matcrete "UK Cobblestone" or equivalent. A combination cure-sealer containing silane shall be used for concrete flatwork. The cure-seal product shall be SpecChem Cure Shield EX or approved equal. Control joints are saw cut every 10 feet. Expansion joint material with a zip-strip shall be installed between the patterned concrete and the back of curb. Control joints and expansion joints shall be sealed with Sikaflex-2C or approved equal. Refer to STND-18 and STND-19 for details. Granular pre-emergent herbicide shall be placed in the areas that are to receive median cover.

5.1.7.4. Detectable Warnings on Concrete Curb Ramps: Detectable Warnings on concrete curb ramps shall be truncated domes of the dimensions shown on the plans. Domes shall be BRICK RED in color. Domes shall be prefabricated by the manufacturer as a pattern on

embeddedable surface plates. Dome plates shall be set into wet concrete and shall not be glue or spray-on varieties. Detectable warning plates shall not be concrete pavers, masonry pavers, or cast-iron plates. Refer to STND-16 for details.

5.1.7.5. Waterproofing Membranes: Waterproofing membrane shall be placed on concrete bridge deck surfaces, and concrete box culverts per the waterproofing membrane detail. Surfaces to receive waterproofing membrane shall be thoroughly cleaned via sand-blasting or high pressure water. The waterproofing membrane shall be a hot pour asphaltic material, with 55 pound (#55) minimum asphaltic based roll material immediately placed on top. Refer to STND-17 for details.

5.1.8.1 Storm Sewer Pipe: Within County Right-of-Way and/or easements, all storm sewer pipe shall be minimum Class II Reinforced Concrete Pipe (RCP) in accordance with ASTM C-76-03, C-506-02 or C-507-02 or HP Storm Pipe. Actual depth of cover, live load, and field conditions may require structurally stronger pipe. CSP and HDPE pipe, in accordance with manufacturer's specifications, are only permitted in privately owned and maintained installations and shall be located within County drainage easements.

5.1.8.2 All new or repaired storm sewer pipe and associated structures within County Right-of-Way and/or easements shall be constructed with trace wire and test locations. Installation shall be tested for operation and documented with Form Letter "T" in accordance with Jefferson County Land Development Regulation Section 33. Test boxes shall be placed behind curb and gutter if sidewalk is detached, and behind sidewalk if attached. See details for the tracer wire and test box installation 28-1 through 28-3.

5.1.9. Culverts: Within County Right-of-Way and/or easements, all culverts shall conform to the Storm Drainage Design and Technical Criteria.

5.1.10. Traffic Control Devices

All traffic control devices shall conform to the MUTCD and be approved by Transportation and Engineering prior to installation. Conformance to the following minimum materials specifications or approved equal is required. Traffic signals shall conform to CDOT standards.

5.1.10.1. Signs, Sign Posts, and Anchors: Sign faces, posts and ~~bases~~ anchors shall conform ~~be in conformance~~ with the following materials specifications. ~~All N~~nonstandard signs ~~faces~~, posts, and anchors ~~bases must be approved by Transportation and Engineering. Nonstandard signs~~ will not be maintained by the County. Post anchors for sign installation after complete construction require approval by Transportation and Engineering.

5.1.10.1.1. Street Name Signs: Sign blanks shall be 6061 or 5052-H38 aluminum alloy 0.100 ~~.080~~ inches thick. Polyethylene plates (Polyplate) is not allowed. ~~(no polyplate allowed).~~ Facing shall be green, electrocut High~~Hi~~-Intensity reflective sheeting with white ~~Hi~~High-Intensity Prismatic grade retroreflective ~~sheeting~~ letters and numerals. Refer to STND-12 for details.

5.1.10.1.2. Regulatory and Warning Signs: Sign blanks shall be 6061 or 5052-H38 aluminum alloy ~~.10~~ 0.100 inches thick. High-Intensity prismatic grade retroreflective sheeting shall be used for the background color, and letters and numerals for ~~on~~ all regulatory ~~(i.e. stop, speed limit)~~ and warning signs. Refer to STND-12 for details.

5.1.10.1.3. Sign Posts: ~~All sign posts shall be two (2) inch by two (2) inch galvanized telespar tube with .120 inch wall thickness, and three-eighths (3/8) inch holes drilled on one (1) inch centers, all sides over full length, ten (10) feet in length. U-posts are not allowed.~~ All sign posts shall be two (2) inch by two (2) inch galvanized TELESPAR® ~~telespar~~ tube with 12 Gauge (0.105 ~~.120~~ inch wall thickness), and ~~three-eighths (3/8)~~ 7/16 inch pre-punched holes ~~drilled~~ on one (1) inch centers, all sides over full length, ten (10) feet in length. U-posts are not allowed.

5.1.10.1.4. Sign Post Bases: ~~All sign post bases shall be twist resistant mounting for telespar type post consisting of a steel angle (1/4" x 2 1/2" x 2 1/2" x 24") with a formed and welded steel plate (1/8" x 10" x 15"), used with a compression fit V-lock wedge of 1/8 inch galvanized steel. The wedge must have a one-half (1/2) inch hole drilled in one side for removal.~~ All sign post anchors shall be anchored securely in the soil or concrete to create a breakaway system. All sign post anchors shall be 2.25 inch x 2.25 inch perforated square tubing, galvanized steel, TELESPAR ® (or equivalent), a minimum of 3 feet in length. Each tube section shall be 12 Gauge (0.105

inch wall thickness) with 7/16 inch diameter pre-punched holes on 1-inch centers, all sides over full length. The anchor tubing shall be twist resistant and allow mounting of a one-size smaller TELESPAR ® sign post. The anchor shall be driven into the soil no less than 30 inches. The sign post shall be inserted 8 inches inside the anchor tubing and double bolted in place prior to covering. Each bolt shall be a Hex Head with a Washer and matching Hex Nut. Bolts shall be secured at the exposed top of the anchor base and placed at opposite tube sides, 90 degrees apart. Signs to be placed in concrete medians or islands shall have the anchor driven inside of a 6-inch Schedule 40 PVC sleeve, with the sleeve measuring the thickness of the concrete plus 1-inch, and secured to the post in the same fashion as described in 5.1.10.1.3. The PVC sleeve shall be embedded in the surrounding concrete when the concrete is placed. Sign post anchors driven in soil not within concrete medians or islands shall be anchored in the same fashion without the PVC sleeve. Refer to STND-13 for details.

5.1.10.2. Pavement Marking: ~~Specified~~ P~~p~~avement marking materials shall be used as specified for the service life, type, and ~~at~~ locations as identified below.

5.1.10.2.1. Temporary Application, Construction, or Detours: Waterborne paint (High Build) shall be used for short duration striping of lane lines, channelizing lines, edge (fog) lines, and centerlines. The same waterborne paint may be used for crosswalks and stop (bar) lines as deemed necessary. Stencil markings, such as symbols or arrows, shall not be placed for temporary use unless approved by the engineer.
~~3M Stamark 5730 preformed plastic marking material or an approved equivalent shall be used for crosswalks, stop bars, symbols (i.e. turn arrows) and striping for separation of turn and through lanes.~~

5.1.10.2.2. Permanent Application: Epoxy paint shall be used for striping of lane lines, channelizing lines, edge (fog) lines, and centerlines. Preformed Thermoplastic Pavement Markings shall be used for crosswalk and stop (bar) line markings, railroad (RR) crossings, words, symbols, and arrows. The thickness of all Preformed Thermoplastic Pavement Markings shall be 125 mils. Preformed Plastic Marking Tape (Type I), may be used in lieu of Preformed Thermoplastic Pavement Markings, if approved by Transportation and Engineering prior to installation. Preformed Plastic Marking Tape shall be 3M™ Stamark™ 5730 (White), 3M™ Stamark™ A270ES (White), or approved equivalent.~~Preformed plastic marking material or reflectorized paint shall be used for all other pavement marking. Use of thermoplastic pavement marking is not permitted.~~

5.1.10.3. Curb Ramps: All required curb ramps shall conform to current CDOT M&S Standard Plans and be approved by Transportation and Engineering.

5.1.10.4. Bike Racks: All required bike racks shall conform to Association of Pedestrian and Bicycle Professionals “Essentials of Bike Parking: Selecting and Installing Bike Parking that Works”.

5.2 Construction Standards

All construction within County Right-of-Way and/or easements shall be in conformance with current CDOT M & S Standards and the following County construction standards.

Standard Number	Description
1	Curb and Gutter
2	Combination Curb, Gutter and Sidewalk
3	6” Vertical Curb, Gutter and Attached Sidewalk
4	6” Vertical Curb, Gutter and Detached Sidewalk
5	Typical Intersection Crosspan
6	Driveway Section for 6” Vertical Curb and Gutter

7-1 and 7-2	~~Optional~~ Concrete Driveway Sections for Combination Curb, Gutter and Sidewalk (Type 2 and Type 3)
8	Driveway/Private Road Approaches ~~for Roads~~=
9	Typical Median Designs
10	Concrete Joint Details
~~11~~	~~Asphalt Street/Road Patchback~~
11	Raised Crossing Details
12	Speed Hump Installation
13	Asphalt Street/Road Patchback
14	Road and Street Name Signs
~~12~~	~~Road and Street Name Signs~~
~~13~~15	Sign Posts and Bases
~~14~~16	Typical Arterial/Major Collector Street Lighting
~~15~~17	Street Name Sign and Bracket on Traffic Signal Pole
18	Waterproofing Membranes for Concrete Box Culvert
19	Waterproofing Membranes for Bridge Deck
20	Median Cover Material Patterned Concrete
21	Median Edging Patterned Concrete
22 ~~16~~	Zone 1 Foothills / Mountain Area Preliminary Pavement Design
23-1 and 23-2 ~~17~~	Zone 2 Dipping Bedrock Area Preliminary Pavement Design Attached and Detached Sidewalks in ROW
24 ~~18~~	Zone 3 Front Range Area Preliminary Pavement Design
25 ~~19~~	Design Zone Preliminary Pavement Sections
26-1	Signal Poles Design Information
26-2	Signal Poles General Layout
26-3	Signal Poles Maximum Loading Information (1)
26-4	Signal Poles Maximum Loading Information (2)
26-5	Signal Poles Details (1)
26-6	Signal Poles Details (2)

26-7	Signal Poles Caisson Details (1)
26-8	Signal Poles Caisson Details (2)
26-9	Signal Poles Caisson Details (3)
26-10	Signal Pole and Mast Arm Mounting Details (1)
26-11	Signal Pole and Mast Arm Mounting Details (2)
26-12	Traffic Signal Pull Box
27-1, 27-2 and 27-3	Flashing Beacon and Sign Installations
28-1, 28-2, and 28-3	Utility Wire Installation Location – Storm Sewer

Chapter 6

Transportation Studies

6.1 Requirements for Transportation Studies (TS)

All traffic data collected must align with industry best practices to ensure consistency across the County. The below criteria must be met:

- Locations for traffic data collection shall be determined at pre-application or equivalent meeting with Jefferson County Staff and cater to the unique circumstances of each development application. Developments with local impacts will have fewer intersections to analyze whereas regional impacts will require a greater number of intersections to be analyzed.
- Vehicle volumes must be collected for at least a 24-hour period on a Tuesday, Wednesday, or Thursday and shall not be collected during inclement weather events, holidays, or adjacent to major holidays (Thanksgiving, Christmas, New Years, etc.). Land uses with weekend peak-hour volumes shall collect at least one weekday and full weekend volumes.
- Bicycle and/or pedestrian volumes will be required in Activity Centers or with proposed land uses that foster active modes of transportation. Additional vulnerable roadway users, such as equestrians, children, or seniors will require special consideration if nearby land uses are conducive to a higher volume of vulnerable roadway users.
- Transportation & Engineering reserves the right to request additional data collection or Measures of Effectiveness as identified in CDOT's Traffic Analysis and Forecasting Guidelines for unique site-specific or off-site conditions.

6.1.1 The TS categories are as follows:

Transportation Information: Transportation Information shall be submitted for any development that generates fewer than 150 vehicle-trips per day. The submitted information will describe the proposed use and estimate the expected number of daily vehicle trips. If submitting for a rezoning, provide a comparison of the existing use and zoning to the *maximum* use under the proposed zoning. If submitting for ~~a site development plan~~any other application type, provide a comparison of the existing use compared to the proposed use. This estimate ~~may~~ shall be performed using the ITE Trip Generation

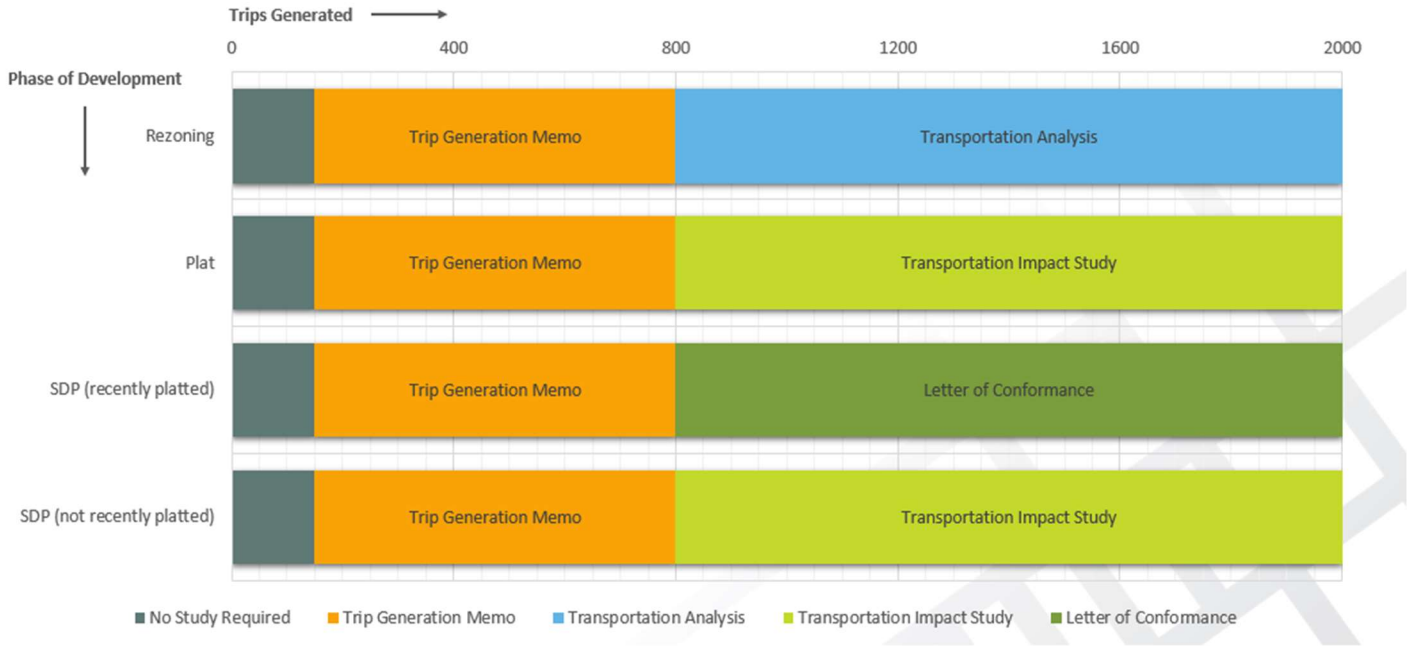
Manual and/or by providing support for the expected vehicle usage of the site. The Transportation Information shall also describe any other relevant information that would impact transportation operations and safety.

Trip Generation Memorandum: A Trip Generation Memorandum (TGM) is required when the land uses proposed with a development are expected to generate between 150 and 800 vehicle-trips per day. The TGM should show a computation of trips generated from the proposed use(s). The TGM for a proposed rezoning should also include a computational comparison of the maximum possible number of trips generated from the proposed uses and the maximum possible trips generated from existing and allowed uses. Include a table summarizing trip generation estimates.

Transportation Analysis: A Transportation Analysis (TA) is required during a Rezoning to determine the amount and/or distribution of traffic generated from a proposed development that is expected to generate 800 average daily vehicle-trips or more. The TA should show a computational comparison of the maximum possible trips generated from the proposed use(s) compared to the number of maximum possible trips generated from existing zoning. It should also include a percentage change in the average daily traffic (ADT) and peak hour traffic of adjacent roadways. The analysis should conceptually address potential onsite and offsite improvements that may be necessary to mitigate traffic impacts from the proposed development, including improvements that may already be required by County regulations.

Transportation Impact Study: A Transportation Impact Study (TIS) is required during a Site Development Plan (SDP) or Plat process when a proposed development is expected to generate 800 average daily vehicle-trips or more. While the trip generation from a proposed development is the main quantitative threshold, existing transportation issues such as a high crash location, complex intersection geometrics or other specific problems or deficiencies may also necessitate a TIS. The scope of the TIS should be agreed upon by the County and the applicant during the Preliminary Application process. The study should address any onsite and offsite improvements that may be necessary to mitigate traffic impacts from the proposed development. Required improvements may include the addition of traffic signals, turning lanes, and bicycle/pedestrian facilities, including any other improvements which may be suggested by the study.

Letter of Conformance with an Approved TIS: If a development in the Site Development Plan process is expected to generate more than 800 new vehicle trips, and there is an approved TIS on file from the last 3 years for the overall or regional development, a letter of conformance describing that the uses proposed in the development match those assumed in the overall TIS and a copy of that TIS are required. This letter of conformance must confirm all current County regulations are met.



6.2 Transportation Information

6.2.1 Responsibility

General: The applicant is responsible for providing trip generation information when proposing a development generating below 150 vehicle trips.

Review Process: Transportation Information for a proposed development will undergo an iterative review process in accordance with the Land Development Regulation. The applicant shall provide a letter identifying changes to the Transportation Information with each re-submittal.

Certification: The Transportation Information should be prepared under the supervision of a qualified and experienced transportation professional who has training in traffic and transportation engineering or planning. Such supervision is not required if applicant has access to the ITE Trip Generation Manual.

6.2.2: Format

Transportation Information should be presented in tables, maps, and diagrams in lieu of a narrative, for clarity and ease of review.

Introduction and Summary

The purpose of the Transportation Information should be clearly stated. This section should concisely summarize findings and conclusions.

Proposed Development

Provide a description of the project site including size, location, current land use, intensity, existing zoning, proposed zoning (if applicable), and access roadways.

Trip Generation Comparison Table

Provide a trip generation comparison table showing the traffic generated from existing land use(s) compared to the maximum potential trip generation for land uses associated with the proposed development. The latest edition of ITE's Trip Generation Handbook provides guidance on how to select between rates and equations when both are available. The national published data provided by ITE should be used as starting points in estimating the amount of traffic by a specific building type or land use. If no trip generation rates nor equations are available from ITE's Trip Generation Handbook, traffic counts from similar site(s) should be provided as a basis for trip

generation estimates. If no site(s) with similar uses are available, an analysis of the proposed use based on the site's capacity may be considered.

Table 1: Rezone Transportation Information

Land Use Type /Zoning (Type)	Land Use Type	ITE Code	Unit	Size	Vehicles per day
Existing Land Use					
Total					
Existing Maximum* Zoning					
Total					
Proposed Maximum* Zoning					
Total					
Additional Trips (Proposed Zoning Total minus Existing Zoning Total)					

Table 2: Change in Use Transportation Information

Land Use Type	Land Use Type	ITE Code	Unit	Size	Vehicles per day
Existing Land Use					
Total					
Proposed Land Use					
Total					
Additional Trips (Proposed Land Use Total minus Existing Land Use Total)					

Findings

Provide a summary of findings.

6.3 Trip Generation Memoranda

6.3~~2~~.1 Responsibility

General: The applicant is responsible for providing trip generation computation when proposing a development generating between 150 and 800 vehicle trips.

Review Process: The TGM for a proposed development will undergo an iterative review process in accordance with the Land Development Regulation. The applicant shall provide a letter identifying changes to the TGM with each re-submittal.

Certification: The TGM shall be prepared under the supervision of a qualified and experienced transportation professional who has specific training in traffic and transportation engineering or planning.

6.3~~2~~.2 Format

The TGM data should be presented in tables, graphs, maps, and diagrams in lieu of a narrative, for clarity and ease of review.

Introduction and Summary

The purpose of the TGM should be clearly stated. This section should concisely summarize findings and conclusions.

Proposed Development

Provide a description of the project site including size, location, current land use, intensity, existing zoning, proposed zoning, and access roadways.

Existing Conditions

Current traffic volume counts including a minimum of 24 hours of data should be collected to determine existing traffic conditions in the study area. If the most recent traffic counts available are 3 years old or older, new traffic counts shall be collected.

Trip Generation Comparison Table

Provide a trip generation comparison table showing the traffic generated from existing land use(s) compared to the maximum potential trip generation for land uses associated with the proposed development. The latest edition of ITE's Trip Generation Handbook provides guidance on how to select between rates and equations when both are available. The national published data provided by ITE should be used as starting points in estimating the amount of traffic by a specific building type or land use. If no trip generation rates nor equations are available from ITE's Trip Generation Handbook, traffic counts from similar site(s) should be provided as a basis for trip generation estimates. If no site(s) with similar uses are available, an analysis of the proposed use based on the site's capacity may be considered.

Findings

Provide a summary of findings, including the percentage increase in average daily traffic (ADT) on adjacent roadways from existing conditions to proposed.

C. Example Outline

Trip Generation Memo

[Development Title]

Case Number: XX-XXXXXX XX

Applicant Information

[Name]

[Address]

[Phone Number]

[Email]

Report Author

[Name]

[Address]

[Phone Number]

[Email]

Date of Original Report: XX-XX-XXXX

Date of Revision: XX-XX-XXXX

Purpose of Analysis

Introduction

The purpose of this Trip Generation Memo is to evaluate the potential impacts of the proposed development to the surrounding transportation network.

Project Overview

[Description of the project site including size, location, current land use, intensity, existing zoning, proposed zoning, access roadways, and proposed development phasing. Site plan should not be included in this analysis.]

Existing Roadway System

[Include a description of the study area roadways and intersections including current traffic counts.]

Projected Transportation Impact

Trip Generation

[Description of publication or methodology used to generate daily and peak hour traffic volumes for the proposed development; trip reduction and internal trip capture rates and pass-by trips not applicable]

Table 1: Trip Generation Summary Table

Trip Generation Summary Table											
Land Use Type /Zoning (Type)	**Land Use Type**	**ITE Code**	**Unit**	**Size**	**Vehicles per day**	**AM Peak**			**PM Peak**		
						In	Out	Total	In	Out	Total
Existing Land Use											
Total											
Existing Maximum* Zoning											
Total											
Proposed Maximum* Zoning											
Total											
Comparison Table											

Zoning Additional Trips (Proposed Zoning Total minus Existing Zoning Total)							

*Maximum potential trip generation based on the existing and proposed zoning

Findings

[Summarize existing land use/proposed intended land use and existing/proposed zoning trip generation and potential impacts to the transportation network]

Existing Land Use/Proposed Intended Land Use

Existing Zoning/Proposed Zoning

Appendix

[Insert any data used in analysis:]

Trip Generation Calculations

Traffic Counts

6.43 Responsibility for Transportation Studies

General: The impacts from a proposed development as assessed in the TS are the primary responsibility of the applicant and their engineer.

Review Process: The TS for a proposed development will undergo an iterative review process in accordance with the Land Development Regulation. The applicant shall provide a letter identifying changes to the Transportation Study, if applicable.

Certification: The TS shall be prepared under the supervision of a qualified and experienced transportation professional who has specific training in traffic and transportation engineering and planning. All transportation operations and design work shall be completed under the supervision of an experienced professional in conformance with the State of Colorado requirements. The TS shall be signed and sealed by a registered professional engineer in the State of Colorado.

6.45Transportation Analyses

6.45.1 Responsibility

General: The applicant is responsible to demonstrate how transportation systems can accommodate the traffic generated by a proposed development or how the system can be improved to accommodate the traffic generated by the development.

Review Process: The TA for a proposed rezone will undergo an iterative review process in accordance with the Zoning Resolution. The applicant shall provide a letter identifying changes to the TA with each re-submittal.

Certification: The TA shall be prepared under the supervision of a qualified and experienced transportation professional who has specific training in traffic and transportation engineering or planning.

6.45.2Format

Throughout the TA, data should be presented in tables, graphs, maps, and diagrams in lieu of a narrative, for clarity and ease of review.

Introduction and Summary

The purpose of the TA should be clearly stated. This section should contain an Executive Summary that concisely summarizes the principal findings, conclusions, and recommendations of the TA.

Proposed Development

Provide a description of the land, parcel size and location within the county. Include a vicinity map showing the location of the project site in relation to the surrounding transportation network. The offsite as well as site specific development should be described. This includes a discussion of location, proposed zoning, land use and intensity. A site plan is not necessary within a TA.

Existing Area Conditions

Limits of the study area should be described in this section. The limits shall be mutually agreed to between the applicant and the County. Roadways that provide access to the site are included in this section. Current traffic volume counts should be collected to determine existing traffic conditions in the study area. If the most recent traffic counts available are 3 years old or older, new traffic counts shall be collected. These counts should include average daily traffic within the study area.

Projected Traffic

The main component of the TA is estimating the amount of traffic being generated from a proposed development. A trip generation comparison table showing computational comparison of the maximum possible trips generated from the proposed uses and the maximum possible trips generated from existing and allowed uses shall be provided. The latest addition of ITE's *Trip Generation Handbook* provides guidance on how to select between rates and equations when both are available. The national published data provided by ITE should be used as starting points in estimating the amount of traffic by a specific building type or land use. If no trip generation rates nor equations are available from ITE's Trip Generation Manual, traffic counts from similar site(s) should be provided as a basis for trip generation estimates. If no site(s) with similar uses are available, an analysis of the proposed use based on the site's capacity may be considered. Include a table summarizing trip generation estimates. Calculate the percentage increase in average daily traffic with the proposed development over the existing traffic.

Findings and Recommendations

Summarize the proposed development, its impacts, and the possible mitigation strategies.

C. Example Outline

Rezoning Transportation Analysis

[Development Title]

Case Number: XX-XXXXXX RZ

Applicant Information

[Name]

[Address]

[Phone Number]

[Email]

Report Author

[Name]

[Address]

[Phone Number]

[Email]

Date of Original Report: XX-XX-XXXX

Date of Revision: XX-XX-XXXX

[Cert Number/Seal and Signature of Certified Transportation Professional (PE, AICP-CTP, ITE-PTP] (If applicable)

Purpose of Analysis

Introduction

The purpose of this Transportation Analysis is to evaluate the potential impacts of the proposed zoning to the surrounding transportation network. If the proposed zoning is approved, the Applicant will be required to submit a Transportation Impact Study to determine specific mitigation measures and must satisfy County Land Development Regulations (LDR) and Transportation Design and Construction Manual Roadway Templates at the time of Site Development Plan (SDP) and/or Preliminary and Final Plat (PF).

Project Overview

[Description of the project site including size, location, current land use, intensity, existing zoning, and proposed zoning. Site plan should not be included in this analysis.]

Study Area

[Description of the study area and impacted roadways and intersections. The study area limits should be described and mutually agreed to between the applicant and the county. The study area should not include roadways proposed interior to the development.]

Existing Roadway System

[Include a description of the study area roadways and intersections including existing traffic counts, lane geometry, posted speed limits, current traffic control at intersections, presence of pedestrian and bicycle infrastructure, availability of on-street parking, and whether a roadway is private or public.]

Projected Transportation Impact

Trip Generation

[Description of publication or methodology used to generate daily and peak hour traffic volumes for the proposed development; trip reduction and internal trip capture rates and pass-by trips not applicable during rezoning]

Table 1: Trip Generation Summary

Trip Generation Summary Table												
Land Use Type /Zoning (Type)	Land Use Type	ITE Code	Unit	Size	Vehicles per day	AM Peak			PM Peak		
						In	Out	Total	In	Out	Total
Existing Land Use											
Total											
Existing Maximum* Zoning											
Total											

Proposed Maximum* Zoning											
Total											
Comparison Table											
Zoning Additional Trips (Proposed Zoning Total minus Existing Zoning Total)											

*Maximum potential trip generation based on the existing and proposed zoning

Analysis

[Summarize existing land use/proposed intended land use and existing/proposed zoning trip generation and potential impacts to the transportation network. Provide the percentage increase in average daily traffic (ADT) on adjacent roadways from existing conditions to proposed. Level of Service (LOS) calculations are not required with a TA.]

Existing Land Use/Proposed Intended Land Use

Existing Zoning/Proposed Zoning

Recommendations

[Summarize the anticipated public improvements and strategies and/or recommendations to mitigate potential negative impacts to the transportation network in the study area]

Table 2: Anticipated Public Improvements

Summary of the anticipated public improvements per County Land Development Regulations (LDR) and Transportation Design and Construction Manual Roadway Templates (shoulders, sidewalks, curb and gutter, bicycle infrastructure, etc.) if the zoning is approved and the applicant proceeds to subsequent development processes.

Location	Improvements

Table 3: Potential Mitigation Strategies

Summary of potential strategies and/or recommendations that show an ability to mitigate traffic impacts from the proposed rezoning to the study area.

[List strategies that can address potential impacts of increased trip generation from the proposed zoning. Impacts should be those that are common for the location type and the level of trip generation increase. Recommendations should generally indicate if strategy is feasible at the location indicated.]

Location	Strategy	Recommendation

Appendix

[Insert any data used in analysis]

Trip Generation Calculations

Traffic Counts

6.5 6 Transportation Impact Studies

6.56.1 Responsibility

General: The applicant and their engineer are responsible for mitigating the impacts from a proposed development as assessed in the TIS.

Review Process: The TIS for a proposed development will undergo an iterative review process in accordance with the Land Development Regulation. The applicant shall provide a letter identifying changes to the Transportation Study with each re-submittal of the TIS.

Certification: The TIS shall be prepared under the supervision of a qualified and experienced transportation professional who has specific training in traffic and transportation engineering and planning. All transportation operations and design work shall be completed under the supervision of an experienced professional in conformance with the State of Colorado requirements. The TIS shall be signed and sealed by a registered Professional Engineer in the State of Colorado.

6.56.2 Format

Throughout the TIS, data should be presented in tables, graphs, maps, and diagrams in lieu of a narrative, for clarity and ease of review.

Introduction and Summary

The purpose of the TIS should be clearly stated. This section should contain an Executive Summary that concisely summarizes the principal findings, conclusions, and recommendations of the TIS.

Proposed Development

Provide a description of the land parcel size, general terrain features and location within the county. Include a vicinity map showing the location of the project site in relation to the surrounding transportation network. The offsite as well as site-specific development should be described. This includes a discussion of land use and intensity, location, site plan and zoning. As required, primary and secondary access to existing streets should be proposed. Construction phasing should be introduced and addressed in this section.

Existing Area Conditions

Limits of the study area should be described in this section. The limits shall be mutually agreed to between the applicant and the County, during the Preliminary Application process or prior to submittal. Roadways that provide access to the site as well as future roadways included in the study area are included in this section. Existing intersections within the study area as well as geometrics and traffic signals should be identified. The existing and proposed uses of the site should be identified. Current traffic volume counts should be collected to determine existing traffic conditions in the study area. If the most recent traffic counts available are 3 years old or older, new traffic counts shall be collected. These counts should include average daily traffic and intersection peak hour turning movements within the study area.

Background Traffic

Background traffic growth estimates should be based on the most recent regional Travel Demand Model available. Overly conservative projections of background growth will not be accepted. If a growth model is not available for the study area, a reasonable growth rate considering area development potential shall be agreed upon by the applicant and the County during the Preliminary Application

process. Growth rates above 2% per year will not be considered.

Trips generated by other approved developments within the study area, that were not included in the traffic counts collected, may be added to the background growth and referenced in the TIS. However, the combined background growth rate from area development and growth modelling shall not exceed an average of 2% per year.

Projected Traffic

One of the most critical elements of the TIS is estimating the amount of traffic being generated. The latest edition of ITE's Trip Generation Handbook provides guidance on how to select between rates and equations when both are available. The national published data provided by ITE should be used as starting points in estimating the amount of traffic by a specific building type or land use. If no trip generation rates nor equations are available from ITE's Trip Generation Manual, traffic counts from similar site(s) should be provided as a basis for trip generation estimates. If no site(s) with similar uses are available, an analysis of the proposed use based on the site's capacity may be considered. Include a table summarizing trip generation estimates.

Trip Distribution: The direction from which traffic will access the site can vary depending on many factors such as the type of proposed development and the area which it will attract traffic, surrounding land uses and population and conditions of the surrounding street system. Document the methods and assumptions made in this section.

Trip Assignment: The final product of this process is total project generated trips, by direction and turning movement, on each segment of the TIS area roadway network. The assignment should reflect the horizon years and consider future conditions of the roadway. Typically, the County uses a 3-year projected and 20-year projected traffic volume. Additional horizon years may be necessary depending on proposed phasing.

Internal Trips: Trips captured internally by a proposed development may be applicable depending on the use. The

internal capture rates used should be based on the current version of the ITE's Trip Generation Handbook.

Pass-by trips: Trip generation analysis yields the number of vehicle trips that a site is expected to generate at its driveways. A percentage of their trips are simply diverted from trips already passing by on the adjacent roadway system. Pass by trips diverted from a roadway should be rechecked if they represent more than 15% of the traffic volume on that roadway. Pass-by trips shall still be applied to the site's driveways and any local roadways between the site and the roadway from which the trips are diverted. Pass-by trip reductions should not be made to the overall trip generation prior to trip assignment.

Transportation Analysis

Capacity analysis is required for each of the major street and site access locations (signalized and un-signalized) within the study area. A clearer understanding of both the transportation related implications of the project and the necessary improvements to ensure acceptable operating conditions should result from this section of the TS. In addition, the following County plans and program and factors shall be considered in the transportation analysis: Major Thoroughfare Plan, Bicycle Plan and Traffic Impact Fee Program.

Factors:

- Safety
- Neighborhood Impacts
- School Zone Traffic Control
- Traffic Control Needs
- Transit Needs or Impacts
- Transportation Demand Management
- Circulation Patterns
- On-site Parking Adequacy and Off-site Parking Facilities
- Pedestrian and Bicycle Movements/Continuity of Facilities

- Other vulnerable roadway users applicable to proposed or nearby land uses
- Service and Delivery Vehicle Access
- Emergency and Fire Apparatus Access

Transportation Safety: The initial review of existing conditions within the TIS area shall include analysis of crash data from the 3 most recent years available. Any intersection experiencing Level of Service of Safety (LOSS) III or IV, or above average crashes on the state-specific Safety Performance Functions, will need additional analysis. The proposed site plan should ensure that the internal circulation system and external access points improve pedestrian and bicyclist safety and minimize vehicle/pedestrian and vehicle/bicyclist conflict points. Additional vulnerable roadway users shall be considered if applicable to a proposed land use or adjacent to existing land uses.

Transportation Operations: Impacts on transportation operations shall be measured based on the definitions contained in the current version of the *Highway Capacity Manual (Transportation Research Board)*. For each analysis period studied (typically 3 and 20 year periods) and for each phase of the project a projected total traffic volume must be estimated for each critical intersection and roadway segment being analyzed. The projected total traffic volumes (consisting of the summation of existing traffic, background growth traffic, background development traffic and site traffic) will be used in the next step-capacity analysis of future conditions.

Signalized Intersections: Level of Service (LOS) is based on roadway system characteristics that include:

- traffic volume
- lane geometry
- percentage of trucks
- peak hour factor
- number of lanes
- signal progression
- ratio of green time to cycle time (G/C)
- roadway grades
- parking conditions
- bicycle and pedestrian flows

The LOS categories are established in the *Highway Capacity Manual*. In general, LOS ratings of A to D are acceptable for the overall intersection and individual movements while E & F ratings must be mitigated. There are a number of software programs that can determine highway capacity.

Unsignalized Intersections: LOS for multi-way stop controlled intersections and driveway intersections must be determined by computing or measuring control delay. Where capacity analysis shows a LOS of D or worse for the overall intersection or any individual movements, mitigation must be provided. Mitigation could be a traffic signal, roundabout, turn restriction, or other measure to improve LOS. An analysis must be completed to determine the proposed measure mitigates the failing LOS. Any proposed all-way stop intersection must be justified using MUTCD's guidance on multi-way stop applications. Any newly signalized intersections must be justified using MUTCD Warrant 2 (Four-Hour Vehicular Volume). Alternatively, Warrant 3 (Peak Hour Volume) may be evaluated only if the unusual cases as defined in the MUTCD apply.

Roundabouts: In cases where LOS analysis indicates that an unsignalized intersection is expected to be LOS D or worse, a roundabout will be assessed before consideration will be given to a proposed signalized or multiway stop intersection. Factors for consideration of a roundabout include:

- availability of right-of-way
- crash history or potential

- traffic volume
- lane geometry
- number of lanes
- roadway grades
- parking conditions
- bicycle and pedestrian flows
- level of service

Each proposed location for a roundabout will be evaluated on a case by case basis. The capacity of a roundabout must be evaluated, and appropriate analytical software programs shall be utilized.

Parking: Utilizing ITE's Parking Generation Manual as a starting point, provide an estimate of how much parking the proposed development will generate. Parking utilization rates from similar sites may aid in this analysis.

Queueing: Provide an analysis of projected 95th percentile queues to determine adequacy of existing and proposed turn lane storage lengths, and whether any through-queues block adjacent intersections.

Improvement Analysis

The improvements required to accommodate existing, background and site generated traffic are summarized in this section. Intersections serving the development should be analyzed first. The analysis should include the following steps:

- Identification of critical movements and corresponding intersection approaches.
- Determine if the intersection needs new types of traffic control such as roundabout, signalization or multi-way stop control.
- Evaluation of each critical movement under potential scenarios of adding lanes, altering signal phasing, signal timing or lane use.
- Evaluation of signal locations, phasing and timing, with particular emphasis on corridor signal progression.
- Evaluation of queue lengths for both turn and through lanes to ensure adequate storage space.
- Identification of potential improvements within the contexts of Right-of-Way availability, intersection spacing, signal progression, County design standards and practical feasibility.

Findings & Recommendations

Summarize the proposed development, its impacts, and the proposed mitigation measures.

C. Example Transportation Impact Study Outline

Transportation Study

[Development Title]

Case Number: XX-XXXXXX SD/PF

Applicant Information

[Name]

[Address]

[Phone Number]

[Email]

Report Author

[Name]

[Address]

[Phone Number]

[Email]

Date of Original Report: XX-XX-XXXX

Date of Revision: XX-XX-XXXX

[Seal and Signature of Colorado Professional Engineer]

Page Break

Executive Summary

Table of Contents

List of Figures

List of Tables

Purpose of Analysis

Proposed Development

Project Location

[Insert vicinity map showing the location of the project site in relation to the surrounding transportation network]

Project Overview

[Description of the site including size, location, land use, intensity, existing zoning, proposed zoning, access locations and proposed development phasing.]

Existing Area Conditions

[Include diagrams and narrative of traffic counts collected]

Background Traffic

[Include reference to source Travel Demand Model, any nearby developments considered, and diagrams of 3-year and 20-year projections]

Projected Traffic

Trip Generation

[Description of publication or methodology used to generate daily and peak hour traffic volumes for the proposed development including any trip reduction considerations, internal trip capture rates and pass-by trips as applicable]

Trip Generation Summary

[Table including land use, intensity, ITE Code, daily traffic volume, peak hour: in, out and total traffic volumes.]

Trip Distribution

Pass-by Trips (if applicable)

Trip Assignment

3-Year Horizon

20-Year Horizon

Transportation Analysis

Level of Service

[LOS diagrams at all study area intersections]

Safety

[LOSS Analysis]

Intersection Controls

[Roundabout analysis, signal- or all-way-stop-warrant analysis]

Parking

[Include parking generation and availability]

Queueing

[Queueing analysis at study area intersections]

Improvement Analysis

[Describe any improvements needed to mitigate impacts]

Conclusion and Recommendations

[Summarize the proposed development including site location, proposed accesses, and trip generation.]

Appendices

Site Plan

Traffic Counts

Growth Calculations

Nearby Development Trip Estimates*

Trip Generation Sheets

LOS Worksheets (Synchro or equivalent)

Roundabout Analysis*

Signal and/or All-Way Stop Warrants*

LOSS Worksheets

Parking Generation Sheets

Queueing Analysis Worksheets

Signal Progression Analysis*

*as applicable

Definitions

AASHTO

American Association of State Highway and Transportation Officials, A Policy on Geometric Design of Highways and Streets, current edition.

ADT

Average Daily Traffic

All Weather Travel Surface

An all weather travel surface is defined as an improved surface that is designed to withstand all weather conditions for typical road use and able to support emergency vehicles. The surface is required to be constructed of concrete, asphalt, recycled asphalt or a minimum of 6-inches of class 6 road base.

Axle Load

The total load transmitted by all wheels on a single axle extending across the full width of the vehicle. Tandem axles 40 inches or less apart shall be considered as a single axle.

California Bearing Ratio

A measure of the ability of a soil or aggregate to resist the transmission of a vertical load in a lateral direction.

CDOT

Colorado Department of Transportation

Dip of Natural Terrain

The dip of the natural terrain refers to the direction at which the existing ground surface slopes downward. The direction of the dip should be drawn perpendicular to the existing contour lines.

Emulsified Asphalt Treated Base

A base consisting of a mixture of mineral aggregate and emulsified asphalt spread on a prepared surface to support a surface course.

Equivalent Single Axle Loads (ESAL)

A numerical factor that expresses the relationship of a given axle load to another axle load in terms of their effect on a serviceability of

a pavement structure. All axle loads are equated in terms of the equivalent number of repetitions of an 18,000 pound single axle.

18k EDLA

18,000 pound single axle Equivalent Daily Load Applications (explained in "Axle Load" and "ESAL" above).

Flexible Pavement

A pavement structure which maintains contact with and distributes loads to the subgrade and depends upon aggregate interlock, particle friction, and cohesion for stability.

Flowline

The transition point between the gutter and the face of the curb. For a cross or valley pan, it is the center of the pan. Where no curb exists, the flowline will be considered the edge of the outside traveled lane.

Grade

Rate or percent of change in slope, either ascending or descending from or along the highway. It is measured along the centerline of the highway or access.

Lime Treated Subgrade

Subgrade consisting of a mixture of soil, hydrated lime and water, usually mixed in place and placed to support a pavement structure.

MUTCD

The Manual on Uniform Traffic Control Devices and the Colorado Supplement, current editions.

Mountains

See "Mountains" definition in the Zoning Resolution.

Passing Sight Distance

The visibility distance required to allow drivers to execute safe passing maneuvers in the opposing traffic lane of a two-lane, two-way highway.

Pavement Structure

The combination of subbase, base course and surface course placed on a subgrade to support the traffic load and distribute it to the roadbed.

a. Subbase: The layer or layers of specified or selected material of designed thickness placed on a subgrade to support a base course.

b. Base Course: The layer or layers of specified or selected material of designed thickness placed on a subbase or subgrade to support a surface course.

c. Surface Course: The uppermost component of a pavement structure designed to accommodate the traffic load, the top layer of which resists skidding, traffic abrasion, and the disintegrating effects of climate. The top layer is sometimes called "Wearing Course".

Plains

See "Plains" definition in the Zoning Resolution.

Plant Mixed Bituminous Base

A base consisting of mineral aggregate and bituminous material, mixed in a central plant, laid and compacted while hot, on a subbase or a subgrade, to support a surface course.

Plant Mixed Bituminous Pavement

A combination of mineral aggregate and bituminous material mixed in a central plant, laid and compacted while hot.

Regional Factor

A numerical factor expressed as a summation of the values assigned for precipitation, elevation, and drainage. This factor is used to adjust the structural number.

Roads

Public or private Rights-of-Way within the Mountain Area or as otherwise designated within this MANUAL.

Serviceability Index

A number indicative of the ability of the pavement to serve traffic at any particular time in its design life.

Sidewalk

A portion of a street designated for pedestrians and other vulnerable roadway users, in accordance with state law.

Signal Progression

Progressive movement of traffic at a planned rate of speed through adjacent signalized locations within a traffic control system without stopping.

Soil Support Value

A number which expresses the relative ability of a soil or aggregate mixture to support traffic loads through the pavement structure.

Speed Change Lane

A separate lane for the purpose of enabling a vehicle entering or leaving a roadway to increase (acceleration lane) or decrease (deceleration lane) its speed to a rate at which it can more safely merge or diverge with through traffic.

Stabilometer "R" Value

A numerical value expressing the ability of a soil or aggregate to resist the transmission of vertical load in a lateral or horizontal direction.

Stopping Sight Distance

The minimum sight distance necessary to enable a vehicle traveling at or near the design speed to stop before reaching a stationary object in its path.

Storage Lane

Additional lane footage added to a deceleration lane to store the maximum number of vehicles likely to accumulate during critical periods without interfering with the through lanes.

Streets

Public or private Rights-of-Way within the Plains Area or as otherwise designated within this MANUAL.

Strength Coefficient

A factor used for expressing the relative strength of each layer in a pavement structure.

Structural Number

A number derived from an analysis of roadbed and traffic conditions. A Weighted Structural Number is a Structural Number which has been adjusted for environmental conditions. A Weighted Structural Number may be converted to pavement structure thickness through the use of suitable factors related to the type of material being used in the pavement structure.

Traffic Analysis Period

A common analysis period (usually 20 years) used in geometric design.

Untreated Base Course

A layer or layers of base course without treatment of any kind.

Vulnerable Roadway User

DRAFT RED-MARKS TO THE STORM DRAINAGE DESIGN AND TECHNICAL CRITERIA

Major Collector (49 feet flowline to flowline with raised median)	6"	9.4"
Major Collector (49' feet flowline to flowline without raised median)	6"	9.4"
Collector (with detached sidewalk)	4.7"	8.4"
Collector (with attached sidewalk)	4.7"	7.1"
Local (34' Flowline to Flowline, 6" vertical curb and detached sidewalk)	6"	8.4"
Local (34' Flowline to Flowline, combination curb, gutter, sidewalk)	5"	5"
Local (28' Flowline to Flowline, vertical curb and detached sidewalk)	6"	8.4"
Local (28' Flowline to Flowline, combination curb, gutter, sidewalk)	5"	5"

Table 1004

Allowable Cross Street Flow

Street/Road Classification	Minor Drainage System Maximum Depth	Major Drainage System Maximum Depth
Major Collector/Arterial/Parkway	None	None
Collector	None	12" depth at gutter flowline or edge of pavement if no gutter
Local	6" depth in *cross pan or gutter flowline	12" depth at gutter flowline or edge of pavement if no gutter

**Cross-pans are prohibited on arterial streets/roads. Cross-pans are allowed on collector and local streets/roads only at locations where traffic stops are intended at intersections and no storm sewer is present.*

Table 1005

Allowable Culvert Overtopping

Street/Road Classification	Minor Drainage System Maximum Depth	Major Drainage System Maximum Depth*
Major Collector/Arterial/Parkway	None	None. Minimum clearance between the low chord or culvert crown and the energy grade line is 6 inches for basins less than 2 square miles, 1 foot for basins up to 10 square miles and 2 feet for basins greater than 10 square miles.
Collector/Local/Driveway	None	12" depth at gutter flowline or edge of pavement if no gutter. The maximum headwater depth is 1.5 times the culvert height.
Local Mountains/ Driveway Mountains	None	Overtopping depth for the 100-year storm event is 12" unless approved by Planning and Zoning ~~and the Fire Protection District.~~

**The regulations set forth in the ZR, also apply for culvert crossings that are within the Floodplain Overlay District.*

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10.4 Hydraulic Evaluation

10.4.1. Allowable Gutter Capacity

The allowable gutter capacity is calculated using the modified Manning's formula. This equation is the basis of the UD-Inlet spreadsheet.

_____

$Q = R(0.56)(Z/n)S^{1/2} d^{8/3})$

Where

Q = discharge in cfs

$Z = 1/S_x$, where S_x is the street transverse slope(ft/ft)

d = depth of water at face of curb (feet)

S_o = street longitudinal slope(ft/ft)

n = Manning's roughness coefficient

R = reduction factor (*Manual*, Figure ST-2)

_____

DRAFT RED-MARKS TO THE ZONING RESOLUTION SECTION 16

Section 16: Land Disturbance

(orig. 8-25-86; am. 9-24-91; am. 8-8-95; am. 10-12-04; am. 4-20-10; am.11-20-12; am 6-1-19)

A. Purpose

The purpose of this section is to:

1. Protect the water quality of the County's drainageways and surface waters; (orig. 10-12-04; am. 12-6-22)
2. Protect life, property and the environment from loss, injury and damage by stormwater runoff, erosion, sediment transport, ponding, flooding, landslides, accelerated soil creep, settlement and subsidence, excessive dust, and other potential hazards caused by grading, construction activities, and denuded soils; (orig. 10-12-04)
3. Allow a temporary land use for land disturbance activities; and (orig. 8-25-86; am. 9-24-91; am. 3-23-99; am. 10-12-04)
4. Establish performance standards to:
   a. Define grading, drainage, erosion and sediment control, and waste disposal requirements; (orig. 10-12-04)
   b. Ensure mitigation of adverse impacts; and (orig. 10-12-04)
   c. Ensure the reclamation of disturbed land. (orig. 10-12-04)

B. General Provisions

1. Performance Standards:

   All Land Disturbance Activities must conform to the performance standards as detailed in this section. These standards apply whether or not a Land Disturbance Permit is required. (orig. 10-12-04; am. 12-6-22)

2. Activities Requiring a Land Disturbance Permit (Grading Permit or Notice of Intent):

   It shall be unlawful for any person, firm or corporation to do or authorize any land disturbance in the unincorporated area of Jefferson County without first obtaining a Land Disturbance Permit from the County to authorize temporary land disturbance activities unless specifically exempted by this section. The applicant, the landowner, and the contractor are responsible if a land disturbance activity is not in accordance with the performance standards, or if a land disturbance activity is undertaken beyond the scope of the Land Disturbance Permit without County approval. Land disturbance activities must be completed in compliance with the approved plans. (orig. 8-25-86; am. 9-24-91: 8-8-95; am. 3-23-99; am. 12-17-02; am. 10-12-04; am. 12-6-22)

   a. Land Disturbance Activities will require a Grading Permit if one the following apply: (orig. 10-12-04; am. 12-6-22)
      (1) The disturbed area is equal to or greater than 0.5 acres. (orig. 6-1-19; am. 12-6-22)
      (2) Land disturbance activities with or in advance of a building permit with less than 0.5 acres of land disturbance, where the applicant is requesting relief of a regulatory requirement, including all performance standards related to grading, drainage and circulation. (orig. 6-1-19; am. 12-6-22; reloc. XX-XX-XX)
      (~~2~~3) 5,000 or more cubic yards of earthen material is stored on a property and the material is not actively being used on said property. An active use would be construction associated with an active building permit for a primary structure. (orig. 12-6-22)
   b. Land disturbance activities that require a Notice of Intent to be submitted with, or in advance of, a Building Permit application include the following: (orig. 10-12-04; am. 6-1-19; am. 12-6-22)
   ~~(1) Land disturbance in accordance with lot grading, erosion and sediment control plans approved with plats; (orig. 10-12-04; am. 11-24-15; am. 6-1-19) or~~
      (~~2~~1) Land disturbance associated with new start building permits for primary structures. (orig. 6-1-19)

(2) Land disturbance associated with access to detached living space where either the access does not exist or has not previously been approved as access to living space. (orig. XX-XX-XX)

~~(3)~~ This Notice of Intent process shall only apply to land disturbance activities that meet the regulatory requirements, including all performance standards related to grading, drainage and circulation~~; otherwise, a Grading Permit is required~~. (orig. 6-1-19; am. 12-6-22; am. XX-XX-XX)

3. Activities exempt from the Requirement for a Grading Permit

Land disturbance activities that are exempt from Grading Permit requirements shall comply with the specific requirements, if any, listed in the applicable exemption provision below. In addition, land disturbance associated with activities listed within this exemption section must still be in compliance with the performance standards set forth in this section, unless specifically stated otherwise. The applicant, landowner and the contractor are responsible if land disturbance activity is not in accordance with these performance standards. The following land disturbance activities are permissible without obtaining a Grading Permit: (orig. 8-25-86; am. 9-24-91; am. 8-8-95; am. 3-23-99; am. 10-12-04; am. 4-20-10; am. 6-1-19; am. 12-6-22)

a. Projects which involve less than 0.5 acres of disturbed area. Individual lots in subdivision developments under the same ownership, involving less than 0.5 acres of disturbed area, shall not be considered separate projects if they are contiguous or within 0.25 mile of each other. Any series of related projects or connected projects on one site, which together exceed the 0.5 acre limitation shall be considered a single project and shall be required to obtain a Grading Permit. (orig. 9-24-91; am. 12-17-02; am. 10-12-04; am. 7-12-05; am. 11-24-15; am. 6-1-19)

b. Land disturbance work being done pursuant to and in conformance with an approved grading plan in conjunction with an approved recorded Plat, Site Development Plan, Minor Adjustment or Exemption from Platting. (orig. 8-25-86; am. 9-24-91; am. 8-8-95; am. 4-27-04; am. 10-12-04)

c. Tillage of agricultural land is exempt from all permit requirements. Agricultural uses of land zoned agricultural, other than tillage, which disturb greater than 0.5 acres is exempt from the filing requirements, provided a conservation plan for the proposed grading activities using the United States Department of Agriculture Soil Conservation Service standards is approved by the Jefferson Conservation District. A copy of the conservation plan shall be submitted to Planning and Zoning prior to the commencement of grading activities. The County may enforce the conditions of the conservation plan under the enforcement provisions of this section. (orig. 9-24-91; am. 8-8-95; am. 12-17-02; am. 4-27-04; am. 11-24-15; am. 6-1-19; am. 12-6-22)

d. Trenching incidental to the construction, maintenance and installation of approved underground pipelines, electrical or communication facilities, and drilling or excavation for approved wells if the total area of land disturbance is less than one acre. Construction activities associated with the installation of the onsite wastewater treatment system (OWTS) shall not be exempt. Construction of access required to complete the trenching or for future maintenance shall not be exempt. (orig. 8-25-86; am. 9-24-91; am. 8-8-95; am. 10-12-04; am. 4-20-10; am.11-20-12; am. 11-24-15; am. 12-6-22)

e. Land disturbance for utility installation or maintenance within a County owned or County maintained Right-of-Way if the total area of land disturbance is less than one acre. These activities require a County Right-of-Way and Construction Permit. (orig. 8-8-95; am. 10-12-04; am.11-20-12)

f. Land disturbance or excavations in accordance with plans incorporated in a mining permit, reclamation plan or sanitary landfill approved by the County. (orig. 8-25-86; am. 9-24-91; am. 12-17-02; am. 10-12-04)

g. County capital improvement or County maintenance projects within Right-of-Way or County property if the total area of land disturbance is less than one acre. (orig. 12-17-02; am. 10-12-04; am.11-20-12; am. 12-6-22)

h. Maintenance and cleaning of existing ditches, lakes, ponds, storm sewer system, and water storage reservoirs with a total area of land disturbance is less than one acre. (orig. 8-25-86; am. 10-12-04; am. 6-1-19)

i. Land disturbance for culvert installation or maintenance within a County owned, public ROW or County maintained Right-of-Way if the total area of land disturbance is less than one acre and the culvert is intended to convey stormwater only. (orig. 6-1-19)

j. Maintenance and resurfacing of existing streets/roads, runways, sidewalks/trail systems, parking lots/loading areas, and railroad beds. (orig. 9-24-91; am. 10-12-04)

k. Performance of emergency work necessary to prevent or mitigate an immediate threat to life or property when an urgent necessity arises. The person performing such emergency work shall notify Planning and Zoning promptly of the problem and work required. If the emergency work would not otherwise be exempt from a Grading Permit, a Grading Permit shall be obtained as soon as possible. (orig. 8-25-86; am. 9-24-91, 8-8-95; am. 4-27-04; am. 10-12-04; am. 5-20-08)

l. Enlargements to parking areas less than 0.5 acre larger than the original area of existing parking facilities for commercial, industrial and institutional uses. Stormwater detention and water quality must be provided for in accordance with the Storm Drainage Design and Technical Criteria Manual. (orig. 4-27-04; am. 10-12-04; am. 11-24-15; am. 6-1-19)

m. Land disturbance for natural surface trails that are less than one acre are exempt. Land disturbance over one acre associated with the construction of natural surface trails shall follow the procedure outlined below prior to commencement of any trail construction. The land disturbance associated with the construction of natural surface trails shall conform with the performance standards of this section and the current Jefferson County Natural Surface Trail Guide. (orig. 4-20-10; am.11-20-12; am. 11-24-15; am. 7-17-18)

    (1) Plans are submitted showing the location and overall scope of the trail construction project, including a description of the proposed construction phasing. (orig. 4-20-10; am. 7-17-18)

    (2) A detailed construction schedule is provided for each phase of the construction project. (orig. 4-20-10)

    (3) The applicant proposes a construction guide that includes typical construction procedures that will be used during the construction of trails, including erosion and sediment control measures. (orig. 4-20-10)

    (4) Planning and Zoning has reviewed the construction guide and has determined that the construction procedures will be sufficient to assure compliance with the grading performance standards of this section, and state or county erosion and sediment control standards. (orig. 4-20-10)

    (5) The applicant shall stake the proposed trail alignment and shall coordinate a site visit with County Staff to review the alignment. If Staff identifies areas where trail alignment should be adjusted to assure conformance with the performance standards and the construction guide, then a new plan showing the new alignment shall be submitted. (orig. 4-20-10)

    (6) The applicant agrees to implement the construction procedures identified within the guide and agrees that the county has the authority to inspect and require field alterations if the typical construction procedures identified in the guide are not being properly implemented. The applicant also agrees that failure to implement the construction standards of the guide or the field alterations directed by Planning and Zoning may result in the issuance of a zoning violation in accordance with this Resolution; and may result in the exemption from the grading permit requirements being revoked for future phases of the trail construction project. (orig. 4-20-10)

    (7) The applicant submits the standard Grading Permit fee to cover the cost of the review and approval of the construction guide, and the inspection of each phase of the construction process. (orig. 4-20-10)

    The procedures outlined in this section shall not apply to trail construction in special flood hazard areas that have been identified as a part of the Jefferson County Floodplain Overlay District. The appropriate floodplain development permit and grading permit will be required for construction activities occurring within special flood hazard areas. (orig. 4-20-10; am. 6-1-19)

n. Any work within State or Federal lands including Rights-of-Way and/or permanent easements held by said agencies. This exemption does not relieve these entities from completing a floodplain development permit in accordance with the Floodplain Overlay District Section of this regulation. (orig. 7-17-18)

o. Onsite disturbance through the Land Disturbance Permit may not be required for properties that are covered by a separate Municipal Separate Storm Sewer System (MS-4) permit through the State of

Colorado, as determined by Planning & Zoning. (reloc. and am. 5-21-19)

4. Exemptions, Waivers, Variances and/or Exclusions

   Any exclusions, exemptions, waivers, and variances included in the regulatory mechanism must comply with the terms and conditions of the MS4 Permit (COR090000). (orig. 6-1-19)

5. Denial of other Permits

   Building Permits or Certificate of Occupancy shall not be issued while an unresolved grading, drainage or floodplain violation is ongoing on the subject property or within a common plan of development. (orig. 8-25-86; am. 9-24-91, am. 8-8-95; am. 12-17-02; am. 7-17-18; am. 6-1-19; am. 12-6-22)

6. Permission of other Agencies or Owners

   The issuance of a Grading Permit or the submission of a Notice of Intent shall not relieve the applicant of the responsibility for securing other permits or approvals required by any other division or agency of Jefferson County or other public agency or for obtaining any easements or authorization to work within an existing easement or for removing or transporting earth materials on property not owned by the applicant. (orig. 8-25-86; am. 9-24-91; am. 8-8-95; am. 12-17-02; am. 4-27-04; am. 10-12-04; am. 12-6-22)

7. Construction and Permits

   For construction within County Right-of-Way, the Grading Permit or Notice of Intent must be accompanied by an Access Permit and/or a Right-of-Way Use and Construction Permit in accordance with plans approved by the County. For construction outside of County Right-of-Way, the Grading Permit must be accompanied by a Construction Permit in accordance with the plans approved by the County. The applicant shall obtain applicable permits from the County prior to commencing field work. All other applicable requirements shall be followed including the Transportation Design and Construction Manual. (orig. 8-8-95; am. 12-17-02; am. 10-12-04; am. 11-24-15; am. 7-17-18; am. 12-6-22)

8. Liability

   Neither the issuance of a Grading Permit nor the submission of a Notice of Intent under the provisions of this section nor compliance with the provisions hereof or with any conditions imposed in this section shall relieve the applicant from responsibility for damage to any person or property or impose any liability upon the County for damage to any person or property. (orig. 8-25-86; am. 12-17-02; am. 10-12-04)

9. Restricted Activities

   a. No blasting, processing, crushing, or off-site hauling or other similar treatment of a commercial mineral deposit may occur in the permit area. (orig. 9-24-91; am. 10-12-04)

   b. Any activity to construct any street/road to be dedicated to the County shall be undertaken pursuant to the Land Development Regulation and the Transportation Design and Construction Manual and in accordance with plans approved by the County. (orig. 9-24-91; am. 8-8-95; am. 3-23-99; am. 12-17-02; am. 10-12-04; am. 11-24-15)

   c. No Grading Permit shall be issued for any land disturbance activity which exceeds the minimal amount of grading necessary for the uses legally allowed at the time of permit application. Land disturbance activities for uses that require rezoning are unlawful. (orig. 8-8-95; am. 3-23-99; am. 10-12-04)

   d. When there is a grading plan approved in conjunction with a Plat, Site Development Plan, Minor Adjustment or an Exemption from Platting, it shall be unlawful to grade in a manner that is not consistent with the approved grading plan. (orig. 8-8-95; am. 3-23-99; am. 10-12-04; am. 7-17-18)

   e. Any construction or development activity in a drainage easement or tract must either be in compliance with the original approved drainage report or comply with the Storm Drainage Design and Technical Criteria. (orig. 10-12-04)

10. Grading Concurrent with Platting

    a. When a property is in a platting process, grading activities may commence prior to Plat approval by the Board of County Commissioners provided all of the following conditions are satisfied: (orig. 3-23-99; am. 10-12-04)

       (1) The zoning is final and recorded. (orig. 3-23-99)

(2) The subdivision proposal has received approval by the Planning Commission or a recommendation of approval by the Planning Commission. (orig. 3-23-99; am. 10-12-04, am. 12-6-22)

(3) The grading and sediment and erosion control plans have received staff approval, either through the Final or Preliminary and Final Plat process. The grading plans shall not include permanent facilities such as curb, gutter, sidewalk, asphalt, etc. The installation of drainage facilities is allowed as approved by Planning and Zoning. (orig. 3-23-99; am. 10-12-04; am. 11-24-15)

(4) The Final Plat application has been received and accepted as complete by staff or the Planning Commission has recommended approval of the Preliminary and Final Plat. (orig. 3-23-99; am. 10-12-04; am. 11-24-15)

(5) Grading within a Floodplain Overlay District may be permitted if a Floodplain Development Permit has been issued. (orig. 3-23-99; am. 12-17-02; am. 10-12-04; am. 11-24-15; am. 7-17-18)

(6) No waivers or alternative standards/requirements or variances related to grading requirements are being requested or are necessary in conjunction with the Final or Preliminary and Final Plat application. (orig. 3-23-99; am. 10-12-04; am. 11-24-15)

(7) The applicant has submitted a letter to the County indicating a request to commence land disturbance activities prior to Final or Preliminary and Final Plat approval and acknowledging that grading prior to Platting is done at their own risk, that grading changes may be required upon Final or Preliminary and Final Plat approval, and that the County shall not be held responsible for changes emanating from or costs associated with any changes that may be required as a result of Final or Preliminary and Final Plat approval. (orig. 3-23-99; am. 12-17-02; am. 10-12-04; am. 11-24-15)

(8) A Performance Guarantee has been accepted by the County in accordance with the Land Development Regulation. (orig. 10-12-04)

b. When grading activities are authorized prior to Plat approval by the Board of County Commissioners, the grading shall comply with the Land Development Regulation and with any previously approved grading plans. (orig. 3-23-99; am. 12-17-02; am. 10-12-04; am. 11-24-15)

c. Any land disturbance activity permitted pursuant to this section may be subject to additional requirements or alterations depending on approval conditions imposed by the Board of County Commissioners during the Plat review. (orig. 3-23-99; am. 10-12-04)

11. Grading Concurrent with the Processing of a Site Development Plan or Minor Adjustment

a. When a property is in a Site Development Plan or Minor Adjustment process, grading activities may commence prior to approval by Planning and Zoning provided all of the following conditions are satisfied: (orig. 11-24-15; am. 7-17-18)

(1) The zoning is final and recorded. (orig. 11-24-15)

(2) The grading and sediment and erosion control plans have received staff approval. The grading plans shall not include permanent facilities such as curb, gutter, sidewalk, asphalt, etc. The installation of drainage facilities is allowed as approved by Planning and Zoning. (orig. 11-24-15)

(3) Grading within a floodplain overlay district may be permitted if a Floodplain Permit has been issued. (orig. 11-24-15; am. 7-17-18)

(4) No alternate standards/requirements or variances related to grading requirements are being requested or are necessary in conjunction with the Minor Adjustment or Site Development Plan application. (orig. 11-24-15)

(5) The applicant has submitted a letter to the County indicating a request to commence land disturbance activities prior to Minor Adjustment or Site Development Plan approval and acknowledging that grading prior to approval is done at their own risk, that grading changes may be required upon Minor Adjustment or Site Development Plan approval, and that the County shall not be held responsible for changes emanating from or costs associated with any changes that may be required as a result of Minor Adjustment or Site Development Plan approval. (orig. 11-24-15)

(6) A Performance Guarantee has been accepted by the County in accordance with the Land Development Regulation. (orig. 11-24-15)

b. When grading activities are authorized prior to Minor Adjustment or Site Development Plan approval by Planning and Zoning, the grading shall comply with the Land Development Regulation and with any previously approved grading plans. (orig. 11-24-15; am. 7-17-18)

c. Any land disturbance activity permitted pursuant to this section may be subject to additional requirements or alterations depending on approval conditions imposed by Planning and Zoning during the Minor Adjustment or Site Development Plan review. (orig. 11-24-15; am. 7-17-18)

C. Submittal Requirements

The following submittal documents are required for Land Disturbance Permit Applications. (orig. 8-25-86; am. 7-17-18; am. 6-1-19)

1. An application form signed by the fee simple owner of the property or by the lessee, licensee or easement holder if the activity is to be undertaken pursuant to that interest. Grading Permit, Notice of Intent, and Natural Surface Trail application forms are available from Planning and Zoning. (orig. 10-12-04; am. 5-20-08; am. 6-1-19)
2. A cover letter describing the proposed activities. Not Required for Notice of Intent Applications. (orig. 10-12-04; am. 5-20-08; am. 6-1-19)
3. A nonrefundable application fee in an amount established by the Board of County Commissioners. (orig. 8-25-86; am. 9-24-91; am. 5-3-94)
4. A copy of the recorded deed for the parcel, tract or lot. (orig. 12-6-22)
5. Proof of Access in accordance with the Access Standards in the General Provisions and Regulations Section of this Zoning Resolution. (orig. 6-1-19)
6. A grading, erosion and sediment control plan in accordance with the Plans and Specifications of this Section. (orig. 8-25-86; am. 6-1-19)
7. A geologic and/or soils investigation report in accordance with the Plans and Specifications of this Section is required if there are any geological hazards including highly erodible soils or commercial mineral deposits within or immediately adjacent to the grading site or when the final cut or fill slopes are proposed to be steeper than 2H:1V or if infiltration is a component of the drainage system. (orig. 8-25-86; am. 9-24-91, 8-8-95; am. 12-17-02; am. 10-12-04; am. 6-1-19; am. 12-6-22)
8. A drainage report or drainage letter in conformance with the requirements of the Storm Drainage Design and Technical Criteria. (orig. 10-12-04; am. 11-24-15; am. 6-1-19; am. 12-17-19)
9. Construction plans, details and supporting calculations for retaining walls, if applicable, in accordance with the Performance Standards of this Section. For Notice of Intent Applications, the applicant will need to apply for a separate miscellaneous permit for retaining walls greater than 36 inches high. (orig. 10-12-04; am. 6-1-19)
10. Drainage Easements may be required to be dedicated to the County for all permanent control measures. The applicant shall provide a legal description and exhibit (signed and stamped by a Professional Land Surveyor) when applicable. Not Required for Notice of Intent Applications. (orig. 12-17-19)
11. A cost and/or quantity estimate (Exhibit A) in accordance with the Improvement Security requirements of this Section, for all the work associated with the project. Reference the example Exhibit A on the Planning and Zoning website. Not Required for Notice of Intent Applications. (orig. 10-12-04; am. 7-12-05; am. 7-17-18; am. 6-1-19; am.12-17-19; am. 12-6-22)

    Note: An improvements security may be required in accordance with the Security requirements of this Section. The typical improvement security will be a letter of credit or cash escrow. If required the improvement security will need to be submitted prior to approval of the Land Disturbance application. (orig. 10-12-04; am. 7-17-18; am. 6-1-19; 12-17-19)
12. A completed N-1 Form stating that the proposed construction and grading are in conformance with the Land Disturbance requirements of this Section and, if applicable, the approved overall grading plan for the subdivision. Only Required for Notice of Intent Applications. (orig. 6-1-19)

    Note: A completed N-2 Form is required prior to issuance of a Certificate of Occupancy. (orig. 6-1-19)

D. Procedures

1. Notice of Intent Procedures: A Notice of Intent (NOI) shall be submitted with, or in advance of, a building permit application for a primary structure that depicts the phased grading, erosion and sediment control measures for that lot/parcel. The NOI shall certify that the Plans are in conformance with the Jefferson County Zoning Resolution (ZR), the Land Development Regulation (LDR), the Storm Drainage Design and Technical Criteria (SDDTC), and The Transportation Design and Construction Manual (TDCM). Any requests for relief of these standards shall require the submittal of a Grading Permit. If applicable, the NOI shall state that the project will be in conformance with the approved construction documents with that subdivision. A completed Form Letter N-1 stating that the proposed construction and grading are in conformance with the approved overall grading plan and Land Disturbance Performance Standards shall be submitted to Planning & Zoning prior to issuance of the Building Permit. Form Letter N-1 shall be completed by a Colorado registered professional engineer. (orig. 6-1-19; am. 12-6-22)

Process Steps	Processing Time Frames	
Process from Plan Submittal to Acceptance of NOI		
Plan Submittal Intake	7 calendar days (Staff confirms the land disturbance permit qualifies as an NOI and required submittal items have been received)	Example timeframe: 19 Days to acceptance of NOI if processing time frames are met. May take longer if issues arise.
Applicant Action is Required	Varies, 5 calendar days used for example timeframe	
Plan Resubmittal and NOI Acceptance	7 calendar days (Staff confirms required submittal items have been received)	
Final Close Out		
Permit Monitoring until submittal of N-2	2 years maximum	

Plan Submittal Intake

a. Sufficiency Review:

The applicant shall electronically submit all the applicable documents identified in the Submittal Requirements of this Section as a complete package, and not in a fragmentary manner for review by the Case Manager. (orig. 12-6-22)

The Case Manager shall have 7 calendar days to review the submittal and either accept the application or respond to the applicant explaining any deficiencies in the submittal documents (including the appropriate application fees). A submittal that is not complete in terms of the type of documents required will not be accepted. (orig. 12-6-22)

Resubmittal Sufficiency Review (if required): The Case Manager shall have 7 calendar days to review the resubmittal and either accept the application or respond to the applicant explaining any deficiencies in the submittal documents. (orig. 12-6-22)

Plan Resubmittal and NOI Acceptance:

b. The final documents shall be comprised of the Submittal Requirements of this Section. (orig. 12-6-22)

The applicant shall have a maximum of 180 calendar days to respond to the comments from the case manager, or the application will be considered withdrawn. The applicant will then have to file a new application with the required fees and documents. The Director of Planning and Zoning may extend this 180-calendar day maximum response deadline for additional 180 calendar day periods if, in his/her opinion, the delay in response is for good cause. (orig. 12-6-22)

c. The Case Manager shall have 7 calendar days to review the resubmitted documents and shall accept the application if it is complete in form and has all the required information described in the Notice of Intent N-1 Form that provides certification from a Colorado registered professional engineer stating that the submitted plans are in conformance with the Jefferson County Zoning Resolution (ZR), the Land Development Regulation (LDR), the Storm Drainage Design and Technical Criteria (SDDTC), the Transportation Design and Construction Manual (TDCM), and the notes, restrictions and supporting documents of any associated approved Preliminary and Final Plat. The owner, contractor or engineer shall also certify that the specified control measures will be installed prior to land

disturbance and that control measures will be adequately maintained throughout the process and shall sign the N-1 Form. (orig. 12-6-22)

Permit Monitoring:

d. Once the work associated with the accepted Notice of Intent is complete, the applicant shall submit a completed N-2 Form which provides certification from a Colorado registered professional engineer stating that all grading work was completed in conformance with the final accepted Grading, Erosion and Sediment Control (GESC) Plan, Drainage Report and N-1 submitted with the project application. If amendments to the accepted plans were made resulting in grading activities that were not completed in conformance with the final accepted plans, then the N-2 Form shall be submitted in conformance with the Amendments procedure of this Section. (orig. 12-6-22)

Permit Limitations:

e. The permit shall be limited to work shown on the approved plans. Such plans shall contain guidelines, conditions, and/or restrictions as are necessary to comply with the performance standards. At any time during the plan review or in the event unforeseen conditions arise during completion of the project, the County may require revision of the plans as necessary to ensure compliance with the performance standards. (orig. 12-6-22)

Amendments:

f. Modifications to the final accepted plans requires submittal of the revised plans and the completed N-2 Form which provides certification from a Colorado registered professional engineer stating that deviations from the accepted plans have occurred and that the revised plans and work has been completed in conformance with the Jefferson County Zoning Resolution (ZR), the Land Development Regulation (LDR), the Storm Drainage Design and Technical Criteria (SDDTC), the Transportation Design and Construction Manual (TDCM), and the notes, restrictions and supporting documents of any associated approved Preliminary and Final Plat. If the appropriate certification cannot be provided and the modifications to the plans do not conform to the Jefferson County Standards and Regulations for land disturbance permits described in this section, revised plans shall be submitted and reviewed by Planning & Zoning through an ~~Grading Permit Application~~Administrative Review process where requests for relief from standards will be evaluated. (orig. 12-6-22)

Validity:

g. The acceptance of plans and specifications by the County shall not be construed as an approval of any violation of the provisions of this section or of any other applicable laws, rules or regulations and shall not prevent the County from thereafter requiring the correction of errors in said plans and specifications or from preventing work being carried on thereunder in violation of this section or any other applicable law, rule or regulation. The issuance of a Land Disturbance Permit prior to any Plat approval shall in no way bind the Planning Commission or the Board of County Commissioners in the approval or denial of a Plat application, and the applicant's grading activities are at the applicant's risk. (orig. 12-6-22)

Time Limits:

h. The work associated with the permit shall be completed within 2 years of the date of acceptance unless an extension has been granted by Planning and Zoning. A request for an extension shall be submitted in writing no later than 10 calendar days prior to the expiration of the permit. Planning and Zoning may grant an extension to the permit up to 1 year. Additional extensions may be granted by Planning and Zoning to allow the establishment of permanent erosion and sediment control measures. (orig. 12-6-22)

2. Grading Permit Procedures: If the applicant complies with all given time frames, submits a complete Grading Permit application and complies with all requirements of this regulation, the estimated time to reach the Determination Phase of the process is 66 calendar days from the date of the 1st referral, depending on the amount of disturbance for the proposed grading activity. (orig. 5-20-08; am. 7-17-18; am. 6-1-19; am. 12-6-22)

Process Steps	Processing Time Frames
Steps prior to 1st Referral	
Sufficiency Review and Referral Distribution or Deficiency Response	7 calendar days
Resubmittal Sufficiency Review (if necessary)	7 calendar days

Process from 1st Referral to Determination		
1st Referral and Staff Response	21 calendar days (14 day referral, 7 days for Staff response)	Example timeframe: 66 Days to determination if processing time frames are met. May take longer if issues arise.
Applicant's Response to 1st Referral	Varies, 14 calendar days used for example timeframe	
Sufficiency Review and Referral Distribution	7 calendar days	
2nd Referral and Staff Response	14 calendar days (7 day referral, 7 days for Staff response)	
Submittal of Final Documents by applicant	Varies - 10 calendar days used for example timeframe	
Determination		
Determination	7 days	

If an applicant is going to request relief from a standard in the Regulations, then a request for relief of the standard may be submitted for consideration. In order to avoid processing delays, it is recommended that a request for relief from a standard be submitted early in the development process. Requests for relief of a standard are subject to different specific processing timeframes, which may add to the length to the processing of the development application. (orig. 5-20-08; am. 7-17-18; am. 6-1-19)

Notification is required at the time of the 1st Referral in accordance with the notification provisions of this section. (orig. 6-1-19)

Proof of Access: The Director of Planning and Zoning may allow the 1st Referral to be sent without meeting the access criteria proof of access requirements, if in his/her opinion the circumstances related to proving access should be finalized during the processing of the application. (orig. 4-20-10; am. 12-21-10; am. 6-1-19)

Steps Prior to 1st Referral

a. Sufficiency Review and Referral Distribution (1st Referral):

The applicant shall electronically submit all the applicable documents identified in the Submittal Requirements of this Section as a complete package, and not in a fragmentary manner for review by the Case Manager.

The Case Manager shall have 7 calendar days to review the submittal and either send the application out on referral or respond to the applicant explaining any deficiencies in the submittal documents (including the appropriate referral fees). A submittal that is not complete in terms of the type of documents required will not be sent out on referral. (orig. 7-17-18; am. 12-6-22)

Resubmittal Sufficiency Review (if required): The Case Manager shall have 7 calendar days to review the resubmittal and either send the application out on referral or respond to the applicant explaining any deficiencies in the submittal documents. (orig. 7-17-18; am. 12-6-22)

Process from 1st Referral to Determination

b. 1st Referral and Staff Response:

The referral agencies shall have 14 calendar days to respond in writing to the application. An extension of no more than 30 calendar days may be agreed to by the applicant. (orig. 5-20-08; am. 7-17-18; am. 6-1-19)

The Case Manager shall have 7 calendar days, after the end of the referral period, to provide the applicant with a Staff response inclusive of other referral responses. The response from the Case Manager will include an opinion as to whether the case should proceed forward to the Final Documents phase or if revised documents should be submitted for a subsequent referral process. (orig. 5-20-08; am. 7-17-18)

c. Applicant's Response to 1st Referral:

For the application to be processed in accordance with the example timeframe in the table above, the applicant shall have 14 Calendar days to address in writing any issues identified by the Case Manager or any referral agency and resubmit revised documents for the 2nd referral. (orig. 5-20-08; am. 7-17-18)

Regardless of the example timeframe, the applicant shall have a maximum of 180 calendar days to respond to the referral comments or the application will be considered withdrawn. The applicant will then have to file a new application with the required fees and documents. The Director of Planning and Zoning may extend this 180 calendar day maximum response deadline for additional 180 calendar day periods if, in his/her opinion, the delay in response is for good cause. (orig. 5-20-08; am. 12-21-10; am. 7-17-18)

d. Sufficiency Review and Referral Distribution (2nd Referral):

The Case Manager shall have 7 calendar days to review the submittal and either send the application out on referral or respond to the applicant explaining any deficiencies in the submittal documents. A submittal that is not complete in terms of the type of documents required will not be sent out on referral. All resubmittal documents shall be submitted as a complete package, and not sent in a fragmentary manner. (orig. 7-17-18; am. 12-6-22)

Resubmittal Sufficiency Review (if required): The Case Manager shall have 5 calendar days to review the resubmittal and either send the application out on referral or respond to the applicant explaining any deficiencies in the submittal documents. (orig. 7-17-18)

e. 2nd Referral and Staff Response:

The referral agencies shall have 7 calendar days to respond in writing to the 2nd referral. An extension of no more than 30 calendar days may be agreed to by the applicant. (orig. 5-20-08; am. 7-17-18)

The Case Manager shall have 7 calendar days after the end of the referral period to provide the applicant with a Staff response inclusive of referral agency responses. The response from the Case Manager will include an opinion as to whether the case should proceed forward to the Final Documents phase or if revised documents should be submitted for a subsequent referral process. (orig. 7-17-18)

f. Applicant's Response to 2nd Referral Comments:

The applicant shall have a maximum of 180 calendar days to respond to the referral comments, or the application will be considered withdrawn. The applicant will then have to file a new application with the required fees and documents. The Director of Planning and Zoning may extend this 180 calendar day maximum response deadline for additional 180 calendar day periods if, in his/her opinion, the delay in response is for good cause. (orig. 5-20-08; am. 12-21-10; am. 7-17-18)

g. Additional Referrals and Responses:

For the 3rd Referral, and for any subsequent referrals thereafter, the processing of the application shall follow the same steps identified above in the Sufficiency Review and Referral Distribution (2nd Referral) process, the 2nd Referral and Staff Response process and the Applicant's Response to 2nd Referral process. (orig. 5-20-08; am. 7-17-18)

h. Final Documents:

The final documents shall be comprised of the stamped and signed grading plans and other final documents as identified by the Case Manager. In addition to submitting the final documents electronically, the applicant shall submit hard copies of the plans as specified in the case managers response to the last referral. (orig. 5-20-08; am. 6-1-19)

The applicant shall have a maximum of 180 calendar days to respond to the comments from the case manager, or the application will be considered withdrawn. The applicant will then have to file a new application with the required fees and documents. The Director of Planning and Zoning may extend this 180-calendar day maximum response deadline for additional 180 calendar day periods if, in his/her opinion, the delay in response is for good cause.

i. Determination:

The Case Manager shall have 7 calendar days to review the Final Documents and shall approve, conditionally approve or deny the application. An application shall be approved if it is complete in form, has all required information, includes appropriate control measure for all stages of construction, including final stabilization, the control measures meet the requirements of the MS4 Permit and the provisions of this section. Otherwise, it shall be denied. Any approval or denial shall be in writing with the reasons for denial specifically identified. Annotations on the plans shall be considered sufficient detail of the reasons for denial. (orig. 8-25-86; am. 9-24-91; am. 8-8-95; am. 12-17-02; am. 4-27-04;

am. 10-12-04; am. 6-1-19).

j. Request for Reconsideration:

If an application is denied or conditionally approved, the applicant may request in writing, within 21 calendar days after the decision, a reconsideration of the decision by Planning and Zoning. The request for reconsideration shall state specific reasons or changes for the reconsideration. Planning and Zoning shall act upon the request for reconsideration within 10 working days of its receipt. Failure to act shall constitute denial of the request for reconsideration. No appeal to the Board of Adjustment shall be permitted unless a request for reconsideration was previously filed and denied. (orig. 8-25-86; am. 9-24-91; am. 8-8-95; am. 12-17-02; am. 4-27-04; am. 5-20-08)

k. Appeals:

If Planning and Zoning denies the request for reconsideration, the applicant may submit a written appeal to the Board of Adjustment. The appeal must be received by the secretary of the Board of Adjustment within 30 calendar days of the date of denial. (orig. 8-25-86; am. 9-24-91; am. 8-8-95; am. 12-17-02; am. 4-27-04; am. 10-12-04; am. 12-14-04; am. 5-20-08)

l. Permit Limitations:

The permit shall be limited to work shown on the approved plans. Such plans shall contain guidelines, conditions, and/or restrictions as are necessary to comply with the performance standards. At any time during the plan review or in the event unforeseen conditions arise during completion of the project, the County may require revision of the plans as necessary to ensure compliance with the performance standards. (orig. 8-25-86; am. 9-24-91; am. 8-8-95; am. 3-23-99; am. 12-17-02; am. 10-12-04; am. 5-20-08)

m. Amendments:

Modifications to the approved plans are subject to an Administrative Review process. Modifications shall comply with the Plans and Specifications requirements and the performance standards as outlined in this Section, unless relief is granted through the appropriate process. (orig. 8-25-86; am. 3-23-99; am. 10-12-04; am. 7-17-18; am. 6-1-19)

n. Validity:

The approval of plans and specifications shall not be construed as an approval of any violation of the provisions of this section or of any other applicable laws, rules or regulations and shall not prevent the County from thereafter requiring the correction of errors in said plans and specifications or from preventing work being carried on thereunder in violation of this section or any other applicable law, rule or regulation. The issuance of a Grading Permit prior to any Plat approval shall in no way bind the Planning Commission or the Board of County Commissioners in the approval or denial of a Plat application, and the applicant's grading activities are at the applicant's risk. (orig. 8-25-86; am. 9-24-91; am. 8-8-95; am. 12-17-02; am. 10-12-04)

2. Grading Permit Inspections

a. Upon approval by Planning and Zoning, the approved plans will be referred to an Engineering Inspector for permit issuance. (orig. 10-12-04: am. 5-20-08; am. 4-20-10; am. 7-17-18)

b. The County may inspect the site and perform any necessary tests from time to time to ensure compliance with the permit conditions. (orig. 7-17-18).

c. Final inspections shall confirm that the completed structural and/or non-structural water quality control measure operates in accordance with the approved plans. (orig. 6-1-19)

d. All applicable development sites must have operational permanent water quality control measures at the completion of the site. In the case where permanent water quality control measures are part of future phasing, the permittee must have a mechanism to ensure that all control measures will be implemented, regardless of completion of future phases or site ownership. In such cases, temporary water quality control measures must be implemented as feasible and maintained until removed or modified. All temporary water quality control measure must meet one of the design standards in the MS4 Permit. For the purpose of this section, completion of a site or phase shall be determined by the issuance of a certificate of occupancy, use of the completed site area according to the site plan, payment marking the completion of a site control measure, the nature of the selected control measure or equivalent determination of completion as appropriate to the nature of the site. (orig. 6-

1-19)

e. Time Limits: The work associated with the permit shall be completed within 2 years of the date of permit issuance, unless an extension has been granted by Transportation and Engineering. A request for an extension shall be submitted in writing no later than 10 calendar days prior to the expiration of the permit. Transportation and Engineering may grant an extension to the permit up to 1 year. Additional extensions may be granted by Transportation and Engineering to allow the establishment of permanent erosion and sediment control measures. (orig. 8-25-86; am. 9-24-91; am. 8-8-94; am. 3-23-99; am. 12-17-02; am. 10-12-04: am. 5-20-08; am. 10-13-09; am. 7-17-18)

E. Plans and Specifications

1. Grading, Erosion and Sediment Control Plan

The proposed grading, erosion and sediment control plan and specifications shall demonstrate compliance with the performance standards and shall be prepared on sheets 24 inches by 36 inches, or as otherwise approved by Planning and Zoning, and stamped and signed by a Colorado registered professional engineer. (orig. 8-25-86; am. 9-24-91; am. 10-12-04; am. 7-17-18; am. 6-1-19)

For graded areas between 0.5 and one acre, the County may waive the requirement for a topographic map and the requirement that the grading plans be prepared, stamped and signed by a Colorado registered professional engineer, where the applicant demonstrates an engineered grading plan and/or topographic map is not necessary to comply with the performance standards set forth herein. (orig. 9-24-91; am. 8-8-95; am. 12-17-02; am. 10-12-04; am. 7-17-18; am. 6-1-19)

The grading, erosion and sediment control plan shall include the following unless waived or exempted by Planning and Zoning herein. (orig. 8-25-86; am. 9-24-91; am. 10-12-04; am. 7-17-18; am. 6-1-19)

a. A map which shows the items listed below. Acceptable map scales are 1 inch to 10, 20, 30, 40, 50, 60 or 100 feet. (orig. 8-25-86; am. 9-24-91; am. 10-12-04)

(1) A vicinity map (not to scale) indicating the location of the site relative to the principal roads, lakes or dams, and watercourses in the area. (orig. 8-25-86; am. 9-24-91)

(2) A title block which includes the title of the Grading Plan, purpose and nature of the grading project and, if applicable, states the use of earth material to be removed from the site. The name of the engineer who prepared the plans should also be included in the title block. (orig. 8-25-86; am. 9-24-91)

(3) The complete site boundary and locations of any easements and Rights-of-Way traversing and adjacent to the property, appropriately labeled and dimensioned. (orig. 8-25-86)

(4) The location of existing roads, buildings, wells, pipelines, watercourses and other structures, facilities and features of the sites, and the location of all improvements on adjacent land within 50 feet of the site's boundary. (orig. 8-25-86)

(5) The location and nature of known or suspected highly erodible soils or geologic hazard areas. (orig. 8-25-86; am. 9-24-91)

(6) A topographic map which shows the affected area. The map shall show affected areas outside the permit boundaries, such as drainages. Contour lines shall be at 5-foot intervals or at an interval of greater detail if necessary to accurately show topographic features and drainage patterns, and the configuration of the ground before and after grading. The existing and final contours shall be shown at 2-foot intervals for subdivisions within the plains area and contours at 5-foot intervals for subdivisions within the mountain areas including the method utilized to obtain all contour intervals. Contours shall be accurate to within one-half (1/2) contour interval and elevations shall be based on United States Geologic Survey (USGS) sea level datum. Except for access permits, USGS quad maps shall not be accepted as evidence for topographic contours. (orig. 8-25-86; am. 9-24-91; am. 3-23-99; am. 10-12-04; reloc. 12-6-22)

(7) The location, extent and finished surface slopes of all final cut and fill lines. (orig. 8-25-86)

(8) The 100-year flood plain boundaries. (orig. 8-25-86)

(9) The location of any existing or proposed flood control facilities, wells or Onsite Wastewater Treatment System in the vicinity of the permit area. Temporary access to the well and Onsite Wastewater Treatment System shall be depicted. (orig. 8-25-86; am. 9-24-91; am. 7-17-18; am. 6-1-19)

(10) The location where any earth materials and topsoil will be stockpiled. Include estimated stockpile volume. If the stockpile will reach into adjacent properties, approval from the property owner shall be required. (orig. 8-25-86; am. 9-24-91; am. 7-17-18)

(11) The north arrow, the scale, and the date. (orig. 8-25-86)

(12) The general location and character of vegetative cover on the site and the location of all major rock outcrops. (orig. 8-25-86; am. 9-24-91)

b. Typical cross sections (not less than two) of all existing and proposed graded areas taken at intervals not exceeding 200 feet and at locations of maximum cuts and fills where such cuts and/or fills exceed 10 feet in height. (orig. 8-25-86; am. 9-24-91)

c. A table of the volume of cut, volume of fill, volume of material to be exported offsite, the steepest proposed slopes, the total area of land disturbance, the existing impervious area, the proposed impervious area (total impervious area for the site) and the area of land disturbance treated by a water quality control measure per the SDDTC. An example of this table is shown below and the table shall be placed on page 1 of the plan set. (orig. 8-25-86; am. 9-24-91; am. 6-1-19; am. 12-6-22)

Total Area of Land Disturbance	acres
Volume of Cut	cy
Volume of Fill	cy
Volume of Material to be Exported Offsite	cy
Existing Impervious Area	acres
Proposed Impervious Area	acres
Area of Land Disturbance Treated by a Permanent Water Quality Control Measure	acres
Steepest Proposed Slope	H:V

d. The projected schedule of operations, including the following dates. The schedule dates must correspond to the permitted construction timeframe following approval: (orig. 8-25-86; am. 12-6-22)

(1) Commencement of work, including days and hours of operation. (orig. 8-25-86; am. 9-24-91)

(2) Start and finish of rough grading. (orig. 8-25-86)

(3) Completion of work in any watercourse. (orig. 8-25-86)

(4) Completion of grading, erosion and sediment control measures (Best Management Practices, BMP's). (orig. 8-25-86; am. 10-12-04; am. 6-1-19; am. 12-6-22)

(5) Maintenance schedule for grading, erosion and sediment control BMP's. (orig. 9-24-91; am. 10-12-04; am. 6-1-19)

(6) Completion of any required landscaping. (orig. 8-25-86)

e. The proposed grading, erosion and sediment control plan shall include permanent and, if applicable, temporary erosion and sediment control BMP's. The plans shall identify all structural and non-structural control measures for the applicable construction activities. The plan must contain installation and implementation specifications or a reference to the document with installation and implementation specifications for all structural control measures. A narrative description of non-structural control measures must be included in the plan. Revegetation plans shall include the seed mixture(s) including species and variety, type of seedbed preparation and method of seeding, seeding rates, seeding dates, type and application rates of fertilizer and mulch, and irrigation facilities and methods if applicable. Seed mix shall be based on the Jefferson Conservation District recommendations and/or a Planning and Zoning approved alternative. Seeding alone is not erosion control until vegetation is established. Seeding shall be combined with applicable erosion control

structural BMP's until vegetation is established. (orig. 9-24-91; am. 10-12-04; am. 7-12-05; am. 7-17-18; am. 6-1-19)

f. At a minimum, initial and final construction phases are required for all grading, erosion and sediment control plans. (orig. 7-17-18)

g. Clearly and legibly show BMPs on the plan and include standard notes and associated details for the BMPs shown on said plan. (orig. 7-17-18; am. 6-1-19)

h. If a Grading Permit Application requires an Improvement Security, a detailed improvements list is required. If the Grading Permit Application does not require an Improvement Security, the quantity of each erosion and sediment control BMP shall be provided. (orig. 6-1-19; am. 12-17-19; am. 12-6-22)

2. Soil/Geologic Investigation Report

If a soils and/or geologic investigation report is required by the County, it shall be prepared and signed by a qualified professional geologist or Colorado registered professional engineer. The report shall contain all the following as they may be applicable to the subject site: (orig. 8-25-86; am. 9-24-91; am. 8-8-95; am. 12-17-02; am. 10-12-04)

a. A site map showing the topographic features of the site and locations of all soil borings and test excavations. (orig. 8-25-86)

b. A classification of the soil types, laboratory test data, and consequent evaluation regarding the distribution and nature of existing soils. (orig. 8-25-86; am. 9-24-91)

c. A description of the geology of the site and adjacent areas when pertinent to the site. (orig. 8-25-86)

d. A suitably scaled map and cross sections showing all identified areas of historic or potential instability within and adjacent to the permit area. An evaluation of the stability of natural slopes and any proposed cut and fill slopes. (orig. 8-25-86; am. 9-24-91)

e. A description of known or inferred groundwater or excessive moisture conditions. (orig. 8-25-86; am. 9-24-91)

f. A description of the soil and geologic investigative techniques employed. (orig. 8-25-86)

g. A log for each soil boring and test excavation showing elevation at ground level and the depth of each soil or rock strata. (orig. 8-25-86)

h. Recommendations for grading procedures and specifications, including methods for excavation and subsequent placement of fill. (orig. 8-25-86)

i. Recommendations for mitigation of geologic hazards and constraints. (orig. 8-25-86; am. 12-6-22)

j. The time of year the field work was done and a list of references and other supportive data. (orig. 8-25-86)

k. Soil parameters to be used in the design of retaining walls. (orig. 9-24-91; am. 12-6-22)

l. Infiltration testing shall be completed for each control measure that utilizes infiltration. At least two tests per control measure are required. The testing shall be at an appropriate elevation and location to adequately evaluate the underlying strata. A Factor of Safety of 2 shall be applied to the final infiltration rate to account for infiltration degradation over time (orig. 12-6-22)

3. Materials Handling Plan

The proposed materials handling plan shall include BMP's for controlling waste and spill prevention and containment. (orig. 10-12-04)

F. Performance Standards for All Land Disturbance Activities

1. Control measures must prevent pollution or degradation of state waters. Control measures must also be appropriate for the specific construction activity, the applicable pollutant sources, and phase of construction. Appropriate control measures must be implemented prior to the start of construction activity, must control potential pollutants during each phase of construction, and must be continued through final stabilization. Appropriate structural control measures must be maintained in operational condition. (orig. 6-1-19)

2. Control measures must be selected, designed, installed, implemented, and maintained to provide control of all potential pollutants, such as but not limited to sediment, construction site waste, trash, discarded building materials, concrete truck washout, chemicals, sanitary waste, and contaminated soils in discharges to the MS4 and/or waterways. At a minimum pollutant sources associated with the following activities (if part of the applicable construction activity) must be addressed: (orig. 6-1-19; am. 12-6-22)

    a. Land disturbance and storage of soils. (orig. 6-1-19)

    b. Vehicle tracking. (orig. 6-1-19)

    c. Loading and unloading operations. (orig. 6-1-19)

    d. Outdoor storage of construction site materials, building materials, fertilizers, and chemicals

    e. Bulk storage of materials. (orig. 6-1-19)

    f. Vehicle and equipment maintenance and fueling. (orig. 6-1-19)

    g. Significant dust or particulate generating processes. (orig. 6-1-19)

    h. Routine maintenance activities involving fertilizers, pesticides, detergents, fuels, solvents, and oils. (orig. 6-1-19)

    i. Concrete truck/equipment washing, including the concrete truck chute and associated fixtures and equipment. (orig. 6-1-19)

    j. Dedicated asphalt and concrete batch plants. (orig. 6-1-19)

    k. Other areas or operations where spills can occur. (orig. 6-1-19)

    l. Other non-stormwater discharges including construction dewatering not covered under the Construction Dewatering Discharges general permit and wash water that may contribute pollutants to the MS4 and/or waterways. (orig. 6-1-19)

3. No Impedance to Natural Water Flow

    a. No work shall be done which may obstruct, impede or interfere with the flow of storm water in overland flows, natural drainageways, unimproved channels or watercourses, or improved ditches, channels or canals in such a manner as to cause flooding that adversely impacts adjacent and downstream properties. Any activity taking place in an area zoned Floodplain Overlay District shall meet the requirements of the Floodplain Overlay District section of this Zoning Resolution. (orig. 8-25-86; am. 9-24-91; am. 12-17-02; am. 7-17-18)

    b. Construction equipment shall be kept out of watercourses except when necessary to perform work on the approved plans. Where in-channel work is designated on approved plans, precautions shall be taken to stabilize the work area during construction to minimize erosion. The channel, including bed and banks, shall be stabilized immediately after in-channel work is completed. (orig. 9-24-91; am. 6-1-19)

    c. Where a drainageway will be crossed by construction vehicles regularly during construction, a temporary crossing shall be provided. A permit may be required from the U.S. Army Corps of Engineers and the Environmental Protection Agency prior to any disturbance in waters of the United States or federally regulated wetlands. (orig. 9-24-91; am. 12-17-02; am. 10-12-04)

4. Excavation

    Excavations shall be constructed and/or protected so that they are stable and do not endanger life or property. (orig. 8-25-86; am. 9-24-91)

5. Excavation Slope

    a. The slope of cut surfaces of permanent excavations shall not be steeper than 2 horizontal to 1 vertical (approximately 25 degrees). Steeper slopes may be permitted for grading permits with the approval of the County, provided it can be adequately demonstrated in a soils/geologic report that such slopes are stable and will not undergo accelerated erosion. The County may require the excavation to be made with a cut face flatter in slope than 2 horizontal to 1 vertical (2H:1V) if soils/geologic information submitted shows that flatter slopes are necessary for stability, adequate revegetation or maintenance. Cut slopes shall be rounded into the existing terrain to produce a contoured transition from cut face to natural ground. (orig. 8-25-86; am. 9-24-91; am. 8-8-95; am. 12-17-02; am. 6-1-19)

    b. The slope of cut surfaces which are 5 feet in height or less and are in competent bedrock may be

steeper than 2H:1V, but shall be no steeper than 1 1/2H:1V. Steeper slopes may be permitted for grading permits with the approval of the County, provided it can be adequately demonstrated in a soils/geologic report that such slopes are stable and will not undergo accelerated erosion. (orig. 9-24-91; am. 8-8-95; am. 12-17-02; am. 6-1-19)

6. Fill Placement

   Completed fills shall be stable masses of well-integrated material bonded to adjacent materials and to the materials on which they rest. Proper drainage and other appropriate measures shall be taken to ensure continuing integrity of fills. Earth materials shall be used which have no more than minor amounts of organic substances. (orig. 8-25-86)

7. Fill Compaction

   The County will require fills to be compacted to a minimum of 90 percent of maximum density as determined by ASTM D1557 unless prior approval by the County has been granted. ASTM D698 may be used for clays with a high plasticity index. The standard for fill compaction shall not apply to fills of less than 50 cubic yards which are placed on natural terrain with a slope flatter than 5H:1V, are less than 5 feet in depth, are not intended to support structures, and do not obstruct a drainage course. (orig. 8-25-86; am. 9-24-91; am. 8-8-95; am. 12-17-02; am. 10-12-04; am. 7-17-18)

8. Ground Preparation for Fill Placement

   The ground surface shall be prepared to receive fill by removing vegetation, topsoil, and other unsuitable materials. (orig. 8-25-86)

9. Fill Slopes

   The slope of all permanent fills shall not be steeper than 2H:1V. Steeper slopes may be permitted for grading permits with the approval of the County, provided it can be adequately demonstrated in a soils/geologic report that such slopes are stable and will not undergo accelerated erosion. (orig. 8-25-86; am. 9-24-91; am. 8-8-95; am. 12-17-02; am. 6-1-19)

10. Driveways and Private Streets/Roads

    a. All street, road and driveway construction shall meet the Transportation Design and Construction Manual standards. (orig. 12-17-02; am. 10-12-04; am. 11-24-15)

    b. For private streets/roads and driveways including turnarounds the maximum allowable vertical disturbance from the toe of fill to the top of cut measured perpendicular to the existing contours shall be 25 feet in vertical height. Planning and Zoning may approve vertical disturbance heights greater than 25 feet for grading permits where it is determined that slopes shall be sufficiently stabilized and restored to be congruent with surrounding conditions to the maximum extent practicable and the alignment of the driveway has been placed in the optimal location to allow for minimal disturbance. (am. 7-17-18; am. 6-1-19)

       Relief for grading permits will also be considered if the applicant demonstrates that the proposed grading plan results in less overall land disturbance and that the relief is necessary to comply with the Preservation of Existing Terrain and Vegetation and Impact Mitigation Standards below. In determining whether to approve or disapprove the request, all technical evaluations, relevant factors, standards specified in other sections, and whether the applicant has adequately addressed the provisions of this Zoning Resolution shall be considered. (orig. 8-8-95; am. 11-12-02; am. 12-17-02; am. 7-1-03; am. 10-12-04; am. 3-26-13; am. 11-24-15; am. 7-17-18; am. 6-1-19)

       (1) Parking areas adjacent to building structures and drainage facilities not a part of the streets/roads will not be considered as vertical disturbance. (reloc. 7-17-18)

    c. Widths (including shoulders) of driveways and private streets/roads shall conform to the Transportation Design and Construction Manual. (orig. 8-8-95; am. 11-12-02; am. 11-24-15)

11. Protection of Adjacent Structures

    Foundations or flatwork which may be affected by any excavation shall be underpinned or otherwise protected against settlement and shall be protected against lateral movement. Fills or other surcharge loads shall not be placed adjacent to any building or structure unless such building or structure is capable of withstanding the additional loads caused by such fill or surcharge. (orig. 8-25-86)

12. Setbacks

a. Setbacks for all grading, erosion and sediment control activities shall be at least 7 feet from property boundaries and at least 25 feet from off-site occupied structures. Planning and Zoning may waive setback requirements for land disturbance provided it can be adequately demonstrated that activities occurring within setback limitations will not adversely affect adjacent property or structures. A letter prepared by a Colorado registered professional engineer will be required that addresses the following:(orig. 8-25-86; am. 9-24-91; am. 8-8-95; am. 3-23-99; am. 4-27-04; am. 5-20-08; am. 6-1-19; am. 12-6-22)

    i. Identify any potential issues caused by grading, erosion and sediment control activities relating to existing infrastructure, drainage patterns or visual and safety impacts. (orig. 12-6-22)

    ii. Provide justification and rationale demonstrating that there will be no adverse impacts to adjacent property owners as a result of the proposed land disturbance. (orig. 12-6-22)

b. Grading for streets/roads and driveways is exempt from setback requirements if it can be adequately demonstrated that grading activities will not adversely affect adjacent properties or structures in terms of, but not limited to, runoff and slope stability. (orig. 9-24-91; am. 7-17-18)

13. Stormwater

Any required drainage and infiltration structures and devices shall be designed and constructed in accordance with standards and criteria established in the Storm Drainage Design and Technical Criteria and as listed below. (orig. 8-25-86; am. 9-24-91; am. 12-17-02; am. 10-12-04; am. 7-17-18; am. 6-1-19)

a. Drainage Structures and Devices: All drainage facilities shall be designed to carry surface and subsurface water to the nearest adequate street, storm drain, and natural watercourse or other juncture. (orig. 8-25-86)

b. Water Accumulation: All finished areas shall be graded and drained such that water will not pond or accumulate except where the end use is a pond, reservoir infiltration area or structure or detention basin. Drainage shall be affected in such a manner that it will not cause erosion or endanger the stability of any cut or fill slope or any building or structure. (orig. 8-25-86; am. 9-24-91; am. 10-12-04; am. 7-17-18)

c. Protection of Adjoining Property: When surface drainage is discharged onto any adjoining property, it shall be discharged in such a manner that it will not cause an increased hazard to the stability of any cut and fill slope or any building or structure. (orig. 8-25-86; am. 9-24-91)

d. Subsurface Drainage: Cut and fill slopes shall be provided with subsurface drainage as necessary for stability. (orig. 8-25-86)

14. Erosion and Sediment Control

The following shall apply to the control of erosion and sediment from land disturbance activities: (orig. 8-25-86; am. 10-12-04)

a. To the maximum extent practicable and in conformance with F.1., above, implementation of the erosion and sediment control plan shall precede grading activities. (orig. 9-24-91; am. 10-12-04; am. 12-6-22)

b. Upon completion of land disturbance activities, disturbed areas, except for rock cuts and fills, shall be stabilized by adequate vegetative cover consisting of at least 70% of pre-existing vegetation conditions or other permanent soil erosion control measures which prevent accelerated erosion. (orig. 8-25-86; am. 9-24-91; am. 10-12-04; am. 7-17-18)

    (1) Cuts and fills accomplished for all roads, driveways and other vehicular access shall be stabilized with adequate vegetative cover or other permanent soil erosion control measures which prevent accelerated erosion, unless the cut is in competent bedrock. (orig. 9-24-91)

    (2) No project shall cause accelerated or increased off-site erosion. (orig. 9-24-91; am. 10-12-04)

c. To the maximum extent practicable, sediment caused by accelerated soil erosion shall be removed from runoff water before leaving the site. (orig. 9-24-91; am. 10-12-04)

d. All land disturbing activities shall be designed, constructed, and phased in such a manner as to minimize the exposure of disturbed areas and to prevent accelerated soil erosion to the maximum extent practicable. (orig. 9-24-91; am. 10-12-04)

e. Cut and fill slopes shall be stabilized, and surface water damage to cut and fill slopes shall be prevented. (orig. 8-25-86)

f. Fugitive dust emissions shall be controlled using the best available control technology as defined by the Colorado Department of Public Health and Environment as of the date of permit issuance. (orig. 8-25-86; am. 9-24-91)

g. All temporary and permanent soil erosion and sediment control practices shall be maintained and repaired as needed to assure continued performance of their intended function in accordance with the details in the approved grading plans. (orig. 9-24-91; am. 10-12-04; am. 7-17-18)

h. All topsoil, where physically practicable, shall be salvaged and no topsoil shall be removed from the site except as set forth in the approved plans. Topsoil and overburden shall be segregated and stockpiled separately. Topsoil and overburden shall be redistributed within the graded area after rough grading to provide a suitable base for areas which will be seeded and planted. Runoff from the stockpiled area shall be controlled to prevent erosion and resultant sedimentation of receiving water. (orig. 8-25-86; am. 9-24-91)

i. Runoff shall not be discharged from the site in quantities or at velocities substantially above those which occurred before land disturbance except into drainage facilities whose design has been specifically approved by the County prior to the permit approval. (orig. 8-25-86; am. 3-23-99; am. 12-17-02; am. 10-12-04)

j. The landowner and/or contractor shall take reasonable precautions to ensure that vehicles do not track or spill earth materials on to streets/roads and shall immediately remove such materials if this occurs. (orig. 8-25-86; am. 12-17-02; am. 10-12-04)

k. Should an increase in sediment discharge occur or become imminent, the landowner and/or contractor shall immediately take all necessary steps to control such discharge. The landowner and/or contractor shall take prompt action to resolve emergency problems. (orig. 8-25-86; am. 12-17-02; am. 10-12-04)

l. Permanent or temporary soil stabilization measures shall be applied to disturbed areas within 14 days after final grade is reached on any portion of the site. Soil stockpiles shall be permanently or temporarily stabilized within 14 days if the stockpile is not being actively utilized for construction purposes. Soil stabilization measures shall be applied within 14 days to disturbed areas which may not be at final grade, but will be left dormant for longer than 60 days. (orig. 9-24-91; am. 7-17-18)

15. Geologic, Floodplain, Wildfire, and Dipping Bedrock Hazards

    Any activity taking place in an area zoned Geologic Hazard Overlay District or Floodplain Overlay District, or Wildland Urban Interface Overlay District, or Dipping Bedrock Overlay District shall meet the requirements of the appropriate sections of this Zoning Resolution. Land disturbance activities shall not create or aggravate unstable slopes, rockfall, landslide, or subsidence hazards or increase the risk of wildfire, flooding, or dipping bedrock hazards. (orig. 8-8-95; am. 3-23-99; am. 10-12-04: am. 10-4-22)

16. Preservation of Existing Terrain and Vegetation and Impact Mitigation

    a. Grading for cut and fill slopes shall not result in a staircase effect, except that retaining walls are permitted per paragraph “e.” below. The edges of graded areas shall blend into the surrounding natural terrain/topography and contour of the land. (orig. 8-8-95; am. 11-12-02)

    b. The proposed grading shall occur in such a manner that it avoids, to the extent practicable, all rock outcroppings, existing trees over 6 inches in caliper, vegetation over 8 feet in height, and riparian, wetland and critical wildlife areas. If from the original documentation and/or field investigation it appears that a less impactive alternative exists, the County may require the grading plan to be revised. (orig. 8-8-95; am. 12-17-02)

    c. Excess material shall be graded in a manner which is similar to the natural topography and shall not be cast over the side of cut or fill slopes. (orig. 8-8-95; am. 11-12-02)

    d. Cut slopes that are in rock and are intended to be left exposed shall be graded to obtain a natural looking appearance, to the extent possible, in form to blend with surrounding terrain. (orig. 8-8-95; am. 11-12-02; am. 10-12-04)

    e. Retaining walls shall not exceed a maximum height of twelve (12) feet and shall be faced with stone or constructed with textured earth colored material that is identified in the grading plan. If a series of

retaining walls is required, the horizontal distance between walls shall be a minimum of 4 feet. The minimum distance between walls shall be increased to 6 feet if either wall exceeds 8 feet in height. Retaining walls greater than 36 inches in height shall be constructed in accordance with the design prepared by a Colorado registered professional engineer. The design may require consultation with a geotechnical engineer, shall consider such factors as expansive soils, steep slopes and vehicles or structures near the walls, and shall include the following: (orig. 8-8-95; am. 11-12-02; am. 12-17-02; am. 7-1-03; am. 10-12-04; am. 7-17-18)

(1) Construction plans indicating how the proposed wall height will vary along its length. (orig. 10-12-04)

(2) Details with elevations showing top and bottom of wall for critical points along the wall length. (orig. 10-12-04)

(3) Supporting calculations that demonstrate an adequate factor of safety (minimum 1.5) for bearing capacity, overturning, sliding, and internal stability, including surcharge loads due to sloping backfill, adjacent vehicles and structures. When global stability analysis is required the minimum factor of safety is 1.3 for both the temporary and permanent conditions. (orig. 10-12-04; am. 12-6-22)

f. The site shall be designed to use existing topography and existing vegetation to screen site disturbance. (orig. 8-8-95; am. 10-12-04)

g. Revegetation plans shall be similar to existing vegetation and feature the prominent use of plants which are indigenous to the area or as approved by the County. Seeding methods such as hydroseeding, drilling, seeding and raking in, or other seeding method may be required when necessary to quickly and effectively establish a groundcover for areas where other types of seeding may be ineffective. (orig. 8-8-95; am. 11-12-02; am. 10-12-04)

h. Any permanent erosion control and drainage improvements that are installed, as a result of land disturbance activities shall be designed to complement and blend with the natural topography of the land. (orig. 8-8-95; am. 10-12-04)

i. Where possible, turnouts shall be provided with the narrowest permissible road to minimize the extent of land disturbance. (orig. 11-12-02; am. 10-12-04)

j. When the grading operations encounter remains of prehistoric people's dwelling sites, remains, or artifacts of historical, paleontological or archaeological significance, the operations shall be temporarily discontinued. The developer shall notify Planning and Zoning, and the developer shall promptly contact the proper authorities to determine the disposition thereof. If required by state or federal authorities, the developer shall preserve the area of historical, paleontological or archaeological significance for a maximum period of 30 days to allow authorities to excavate and recover the items of significance. (reloc. 12-6-22)

17. Materials handling BMP's are required. At a minimum, BMP's shall include controlling waste such as discarded building materials, concrete truck washout, chemicals, litter and sanitary waste, as applicable. In addition, spill prevention and containment BMP's for construction materials, waste and fuel shall be provided, as applicable. (orig. 10-12-04)

18. Maximum allowable height of a temporary stockpile is 50 feet measured from existing grade. The setback of the stockpile measured from the abutting property line to the edge of the stockpile is 2 multiplied by the height of the stockpile. The edge of the stockpile shall be no closer than the grading setback (7 feet from the abutting property line). The slope shall not exceed 3H:1V unless otherwise approved by Planning and Zoning for grading permits based on existing site conditions and topographic constraints. The temporary stockpile shall remain in place no longer than two years unless otherwise approved by Planning and Zoning for grading permits based on site conditions and construction duration. (orig. 11-24-15; am. 7-17-18; am. 6-1-19; am. 12-6-22)

G. Improvement Security

1. As a condition for the issuance of a Grading Permit, the County may require an improvement security in an amount necessary to ensure compliance with the performance standards in the event of default on the part of the applicant or of denial of the case by the Board of County Commissioners. Grading Permits associated with single family attached, detached or duplex residential structures with an active building permit will not require an improvement security. An improvement security is required for improvements in the Right-Of-Way or for improvements which may affect Right-Of-Way. (orig. 8-25-85; am. 9-24-91; am.

8-8-95; am. 3-23-99; am. 12-17-02; am. 7-1-03; am. 10-12-04; am. 10-13-09; am. 6-1-19; am. 12-17-19; am. 12-6-22)

a. Except for rough grading, the amount of the security shall be 100 percent of the cost of all grading erosion and sediment control items plus 100% of the cost of the work required for public streets/roads and for private streets/roads. The amount of security for rough grading shall be 25 percent of the total cost of rough grading for all lands within the mountains and 10 percent for all lands within plains of the County. A contingency amount equivalent to 10 percent of the total cost of all work shall be added to the security amount. (orig. 3-23-99; am. 12-17-02; am. 7-17-18)

b. The improvement security shall be in the form of cash escrow or a letter of credit. (am. 3-23-99)

c. The improvement security shall remain in effect until final inspections have been made, where required, and all grading work has been accepted by the County. Final acceptance of warranted Public Improvements shall conform to the Jefferson County Land Development Regulation. Upon final acceptance of improvements or warranted Public Improvements, securities will be released. (orig. 8-25-85; am. 9-24-91; am. 8-8-95; am. 12-17-02: am. 5-20-08)

2. Any letter of credit or deposit required pursuant to this section shall be payable to the Board of County Commissioners of Jefferson County and shall be for a minimum of 2 year. (orig. 8-25-86; am. 8-8-95; am. 10-12-04; am. 5-20-08)

H. Permit Completion and Closeout

1. Notice of Intent

a. A completed Form Letter N-2 stating that the final construction and grading are in conformance with the approved overall grading plan and Notice of Intent shall be submitted to Planning & Zoning prior to issuance of the Certificate of Occupancy. Form Letter N-2 shall be completed by a Colorado registered professional engineer. (orig. 6-1-19)

2. Grading Permit

a. The conditions of approval as specified in the approval letter and/or approved plan set. (orig. 8-25-86; am. 6-1-19)

b. Jefferson County staff confirms that the completed control measure operates in accordance with the approved site plan. (orig. 6-1-19)

c. The Certificate of Occupancy for residential structures will be issued once the Grading Permit certification is accepted and the Grading Permit is closed by Jefferson County staff. (orig. 6-1-19)

I. Release of Security for Grading Permits

1. Upon completion of the following, the improvement and/or maintenance securities will be released, and/or a Certificate of Compliance will be issued. (orig. 8-25-86; am. 9-24-91; am. 8-8-95; am. 12-17-02; am. 7-17-18; am. 6-1-19)

a. Applicable provisions of this section. (orig. 8-25-86)

b. The conditions of approval of the Grading Permit. (orig. 8-25-86; am. 6-1-19)

c. Final stabilization of the site, which can include established vegetation, that will prevent accelerated erosion and other erosion control measures, where required. A uniform vegetative cover with a density of at least 70 percent of pre-disturbance levels shall be considered adequate vegetative cover for erosion control measures. (orig. 8-25-86; am. 9-24-91; am. 12-17-02; am. 7-1-03; am. 10-12-04)

d. Receipt of proof of compaction, where the compaction standard applies. Compaction tests shall be taken under the direct supervision of a geotechnical engineer. The geotechnical engineer or his designated representative shall observe grading activities on a full-time basis and shall take sufficient compaction test to enable the engineer to determine that the site is ready for the intended uses and shall so state on the compaction report. Compaction reports shall be signed and sealed and dated by a Colorado registered professional engineer. Compaction reports shall include the moisture density curves, location of test sites, soil types(s), density results, type of test and if a failing test, retesting of the site. The engineer shall provide a complete set of all test and observations and a report stating that the grading activities have been completed in substantial conformance with the approved grading plan, the requirements of this section, and the Land Development Regulation. (orig. 9-24-91; am. 3-23-99; am. 10-12-04)

2. An as-built plan is required by the County for the following:

   a. Land disturbance activities that occur in a Floodplain Overlay District.

   b. Large fills (greater than 1000 cubic yards).

   c. Retaining walls as designated on the approved plans.

   d. The construction deviates from the approved plans.

   e. Permanent non-structural and structural water quality control measures including dimensions, volume calculations and overall compliance with approved plans.

   f. Other activities as required by Performance Guarantee and Warranty Section of the Land Development Regulation. Orig. 9-24-91; am. 8-8-95; am. 12-17-02; am. 10-12-04; am. 7-17-18)

3. Upon completion and acceptance of all items listed on the list of improvements and associated costs, the project performance guarantee may be reduced to the amount shown on the Exhibit A for adequate revegetation and temporary erosion and sediment control. Revegetation means that a density of at least 70 percent of the pre-disturbance levels or equivalent permanent methods have been employed. (orig. 12-17-02; am. 10-12-04)

4. However, upon failure to complete the work, failure to comply with all of the terms of the permit or failure of the erosion and sediment control measures to function properly, the County may perform the required work or cause it to be done and collect from the permittee or surety all costs incurred, including administrative and inspection costs. Any unused portion of a deposit shall be refunded to the permittee after deduction by the County of the cost of the work. (orig. 8-25-86; am. 10-12-04; am. 7-17-18)

J. Enforcement

1. Inspections

   The County may inspect the site and perform any necessary tests from time to time to ensure compliance with the permit conditions. (orig. 9-24-91; am. 8-8-95; am. 3-23-99)

2. Suspension and Revocation of Permit

   The County may suspend, limit or revoke a permit for violation of any provision of this section, violation of the permit or misrepresentations by permit holder, his agents or his employees or independent contractors under contract with the permittee for a Notice of Intent or Grading Permit for an individual lot or within a common plan of development. The decision of the County to suspend, limit or revoke a permit may be appealed to the Board of Adjustment. No work shall be performed while an appeal is pending except as authorized by the County. (orig. 8-25-86; am. 9-24-91; am. 8-8-95; am. 12-17-02; am. 6-1-19)

3. Enforcement Response

   a. The escalation process for enforcement actions includes verbal warnings, written notifications, revocation of permits, denial of plan review, withholding of permits, withholding inspections, stop work orders, issuance of zoning violations (civil process), issuance of illicit discharge violations (civil process), fines associated with the illicit discharge violation and/or using the performance guarantee to hire a separate contractor to complete the work. The escalation process does not have to occur in that order. (orig. 6-1-19; am. 12-6-22)

   b. The escalation process for chronic and recalcitrant violators of control measure requirements includes verbal warnings, written notifications, revocation of permits, denial of plan review, withholding of permits, withholding inspections, stop work orders, issuance of zoning violations (civil process), issuance of illicit discharge violations (civil process), fines associated with the illicit discharge violation and/or using the performance guarantee to hire a separate contractor to complete the work. The escalation process does not have to occur in that order. (orig. 6-1-19; am. 12-6-22)

3. Court Action

   Nothing in this section shall be construed to prevent the Attorney's Office, at their discretion, from filing a court action based upon a violation or potential violation of this section. (orig. 3-23-99)

4. Right of Entry

   Whenever necessary to enforce the provisions of this section the County can enter the premises at all reasonable times to perform any duty imposed by this section. If such entry is refused, the County shall have recourse to every remedy provided by law to secure entry. If a Land Disturbance Permit is

suspended or revoked, or if a Stop Work Order has been issued, the County shall have the right to enter the site to complete the work allowed under the grading permit. (orig. 8-25-86; am. 9-24-91; am. 8-8-95; am. 3-23-99; am. 12-17-02; am. 10-12-04; am. 7-17-18)

5. Stop Work Orders

   When any work is being performed which is not in compliance with an approved permit and/or the provisions of this section or any other applicable law, rule or regulation, the County can order the work stopped by serving written notice on any personnel engaged in performing the work. Such person shall immediately stop such work until authorized by the County to proceed. If there are no persons present on the premises, the notice may be posted in a conspicuous place and the notice shall state the nature of the violation. The notice shall not be removed until the violation has been vacated or authorization to remove the notice has been issued. Failure to comply with any Stop Work Order is a violation of the Zoning Resolution, the Grading Permit and/or the Notice of Intent. (orig. 8-25-86; am. 9-24-91; am. 8-8-95; am. 3-23-99; am. 12-17-02; am. 10-12-04; am. 7-17-18)

6. Violations of Other Regulations

   Violations of this section may also cause violations of other State and/or Federal regulations and result in additional fines and penalties. (am. 10-12-04)

DRAFT RED-MARKS TO THE ZONING RESOLUTION SECTION 2

Section 2 - General Provisions and Regulations

(orig. 7-28-58; am. 2-6-84; am 7-1-03)

A. Amendment of Underlying Zones

Any amendment to any underlying conventional zone district, including the Planned Development Zone District, shall in no way supersede or except any existing or subsequently adopted overlay district. (orig. 6-15-76)

B. Modification of Lots or Structures

No lot, or any structure thereon, shall be modified in any way which will not conform to the applicable zone district regulations, except: (orig. 7-28-58; am. 9-6-77)

1. Where the Board of Adjustment, within its authority, grants a variance; or (orig. 7-28-58)
2. Where the Director of Planning and Zoning grants an administrative exception; or (orig.7-17-18)
3. Where a portion of property has been acquired by an authorized public entity. (orig. 7-28-58; am. 9-6-77)

C. Structures Per Lot

1. Every building shall be constructed and located on a single lot or combination of lots that have been merged, and no lot shall have more than 1 main building, except as otherwise provided by this Zoning Resolution. (orig. 7-28-58; am. 9-6-77; am. 3-26-13)
2. One or more main non-residential or multi-family structures per lot are allowed pursuant to the requirements of the Land Development Regulation or the Policies and Procedures Manual. (orig. 3-8-82; am. 6-14-88; am. 12-17-02)
3. Delineation of building envelopes is not required for accessory buildings, provided that all easements and applicable setbacks are observed. (orig. 6-14-88)
4. No structure shall be placed on a zone district line where such line crosses any portion of a property except where both zone districts would allow the use, and where both zone districts have the same setback limitations. (orig. 7-1-03)

D. Permit Requirements

1. Building Permit
    a. It shall be unlawful for any person, firm or corporation to erect, construct, reconstruct or structurally alter any building or other structure without first obtaining both of the following: (orig. 5-6-46; am. 12-26-62; am. 9-6-77; am. 8-6-80; am. 5-3-94)
        (1) Zoning approval from Planning and Zoning including payment of a nonrefundable processing fee in an amount established by the Board of County Commissioners. (orig. 5-3-94; am. 5-25-04; am. 5-20-08)
        (2) A Building Permit from Building Safety. (orig. 5-3-94; am. 5-25-04)
    b. A Building Permit shall not be issued unless the lot or parcel is a proper division of land in accordance with Section 30-28-101(10) et. seq. C.R.S., as amended, unless it is the result of a process that has been exempted from the term “subdivision” and “subdivided land” by the Board of County Commissioners. (orig. 4-20-10)
    c. A Building Permit shall not be issued unless the plans and the use conform to this Zoning Resolution and are approved by Planning and Zoning and Building Safety. (orig. 5-6-46; am. 12-26-62; am. 9-6-77; am. 5-25-04; am. 5-20-08)
    d. A Building Permit shall not be issued for properties with the following situations:
        (1) Multiple, unmerged lots or parcels are utilized in order to meet minimum zoning requirements for lot size or the Public Health requirements at the time of permit application; (orig. 6-15-04; am. 10-13-09; reloc. and am. 7-17-18)
        (2) Underlying setback(s) cannot be met from interior property line(s) and multiple lots are utilized as part of permit process; (orig. 6-15-04; reloc. 7-17-18)

(3) A well is located on a separate lot or parcel where multiple lots or parcels are required to meet minimum zoning requirements at the time of permit application; (orig. 6-15-04; reloc. 7-17-18)

(4) An accessory structure proposed on an adjoining lot where the primary structure is located on a separate lot; or (orig. 6-15-04, am. 10-25-05; reloc. 7-17-18)

(5) An Onsite Wastewater Treatment System is located on a separate lot or parcel where multiple lots or parcels are used in combination to meet minimum zoning requirements at the time of permit application. (orig. 6-15-04; am. 10-25-05; reloc. 7-17-18)

e. Any building, structure or use which is not in compliance with the plans or use approved by Planning and Zoning shall constitute a violation of this Zoning Resolution. (orig. 6 14 88; am. 5-25-04; am. 5-20-08)

f. The owner, at the time of issuance of the Building Permit, and the person to whom the permit is issued shall be responsible for compliance with all setback requirements set forth in this Zoning Resolution for the building or structure covered by the permit. (orig. 9-6-77)

g. An Improvement Location Certificate (ILC), stamped by a registered surveyor, licensed in the State of Colorado, shall be required as a site plan for all Building Permits for new or replacement structures, or modifications to the footprint of existing structures. (orig. 7-17-18; am. 1-28-25)

(1) However, an Improvement Survey Plat (ISP) shall be required in lieu of an ILC as a submittal item when reduced setbacks for the proposed structure were approved by either the Director of Planning and Zoning, or the Board of Adjustment. (orig. 7-17-18)

(2) The ILC must show the structure(s) on adjacent properties when the zone district specifies a minimum separation between buildings. (orig. 7-17-18)

h. Verification of Setbacks Requirements (orig. 7-17-18):

(1) A Setback Verification Form, certified by a registered surveyor, licensed in the State of Colorado, shall be submitted to Planning & Zoning upon completion of concrete/foundation form placement, and prior to sheathing for Building Permits under the following conditions: (orig. 7-17-18; am. 1-28-25)

(a) Where a planned setback for a detached accessory structure is less than 3 feet in the Plains areas or 5 feet in Mountain areas from the required setback for the applicable zone district; or (orig. 7-17-18)

(b) Where a planned setback for an addition to a primary structure is less than 3 feet in the Plains areas or 5 feet in Mountain areas from the required setback for the applicable zone district; or (orig. 7-17-18)

(c) Reduced setbacks for the proposed structure were approved by either the Director of Planning and Zoning, or the Board of Adjustment. (orig. 7-17-18)

(2) For Building Permits for new primary structures where a setback verification form is not required, and where a proposed setback is less than 3 feet in the Plains area or 5 feet in the Mountain areas from the required minimum setback for the applicable zone district, prior to the rough framing inspection, an Improvement Location Certificate, certified by a registered surveyor, licensed in the State of Colorado, shall be submitted to Planning & Zoning to verify that the required setbacks are being met. (orig. 7-17-18)

i. Fire Protection: A written statement from the appropriate fire protection district, indicating that the property, for which the Building Permit is applied for, is within the boundaries of the fire protection district, and will be served by said fire protection district. If the property is not located within a fire protection district, a written statement from a local government indicating that they will provide service to the property shall be required. (orig. 1-18-22; am. 1-28-25)

(1) The above written statement shall be submitted for new structures, additions of any size, accessory dwelling units, commercial permits and any changes that modify roads or gates. The following shall be exempted from this requirement: (Orig. 1-28-25)

(a) Residential interior remodels with no additional square footage, and; (orig. 1-28-25)

(b) Outdoor decks associated with residential structures. (orig. 1-28-25)

j. Access Standards: Before any Building Permit for a new dwelling, commercial building, industrial building, or other main building, or to replace an existing dwelling, commercial building, industrial building, or other main building, or for additional space of 400 square feet or more, measured cumulatively, may be issued, the applicant must meet the access requirements listed below. These access standards shall be deemed to be general standards that supersede conflicting provisions in any Official Development Plan. (orig. 9-6-77; am. 12-5-95; am. 12-17-02; am. 5-20-08, am. 4-20-10)

(1) Right of Access: Evidence must be submitted demonstrating that the applicant has a right of access to a county, state or city maintained street/road. If the applicant's property does not have direct access to a county, state or city maintained street/road, then the offsite portion of the access that connects to the county, state or city maintained street/road must be in conformance with one or more of the following: (orig. 12-5-95; am. 12-17-02; am. 7-1-03; am. 10-25-05; am. 5-20-08; am. 4-20-10)

(a) Right-of-way that has been dedicated and accepted by the county, the state or a city, but is not maintained by the county, the state or a city. (orig. 4-20-10)

(b) Right-of-way that has been dedicated to the county or the public, but has not been accepted by the county, and is not maintained by the county, the state or a city. (orig. 4-20-10)

(c) A recorded easement that gives the applicant a right of use. Planning and Zoning will review the access information provided by the applicant and information of public record, to determine the apparent right to use the access easement. Planning and Zoning is not making a legal determination as to the right of the use, only a determination that the access is sufficient for the issuance of a building permit. (orig. 4-20-10)

(d) A declared access from a recorded court decree that gives the applicant a right of use. (orig. 4-20-10)

(e) An existing access across privately owned property that has been declared a "road of record" by the Director of Planning and Zoning. The Director of Planning and Zoning's determination of a "road of record" is a determination of an apparent right to use the access for the purpose of issuing the building permit, not a legal determination as to the right of the use. The Director of Planning and Zoning may declare an access a "road of record" if it meets the following criteria: (orig. 4-20-10; am. 3-3-15)

(e-1) The access serving the parcel has been used for at least twenty (20) consecutive years. (orig. 4-20-10)

(e-2) The access does not cross property owned by a public entity or other entity over which prescriptive rights cannot be established. (orig. 4-20-10)

(e-3) The applicant has made a reasonable attempt to obtain an access easement or other acceptable legal right to use the access road and has been unsuccessful. (orig. 4-20-10)

(f) Any access right that is not identified above but is deemed sufficient by the County Attorney's Office for the purpose of issuing a building permit. An example of when this provision may be used would be when an access crosses property that is owned by a public entity or other entity over which prescriptive rights cannot be established, and a letter of authorization for such access road is provided by such entity. (orig. 4-20-10)

(2) Right of Access Width: The right of access width must comply with the roadway standards of the Transportation Design and Construction Manual~~, or an alternative standard as approved by the fire protection district~~. The Transportation Design and Construction Manual standards for widths of streets/roads and driveways is established based on the existing and/or potential use of the access system. (orig. 12-5-95; am. 12-17-02; am. 7-1-03; am. 10-25-05, am. 4-20-10; am. 11-24-15; am. 7-17-18; am XX-XX-XX)

(3) Physical Location of Access: The physical location of the access must closely align with the described limits of the right of access. If the right of access is based on a centerline description, then the centerline of the physical access shall be located along the centerline description. The evaluation of the physical location of the access shall be completed to a point where the street/road connects to a county, state or city maintained street/road. Planning and Zoning will review the physical location of the access based on documents provided by the applicant, information of public record and with the use of cartographic information. If necessary to locate and clarify access, a survey may be required. Planning and Zoning is not making a legal determination as to the location of the street/road with respect to the right of access. The provisions of this section do not apply if the right of access is a "road of record". The provisions of this section may be determined not to apply to an alternate right of access approved by the County Attorney's Office. (orig. 4-20-10)

(4) Physical Standard of Access: ~~The physical access must comply with the standards of the Transportation Design and Construction Manual.~~ The evaluation of the physical access shall be completed ~~to~~ both on-site and off-site to a point where the street/road or driveway connects to a county, state or city maintained street/road. For the evaluation of the physical access standards, different requirements are established for the different building permit types listed below~~The Transportation Design and Construction Manual standards for streets/roads and driveways is established based on the existing and potential use of the access system and does allow for alternate standards to be approved by the appropriate fire protection district. The fire protection district may require additional improvements such as fire sprinklers and cisterns as a condition of their approval of an alternate standard. If improvements are required based on this evaluation, then the following shall apply~~: (orig. 12-5-95; am. 6-18-02; am. 12-17-02; am. 10-25-05; am. 5-20-08; am. 4-20-10; am. 11-24-15; am. XX-XX-XX)

(a) All Building Permits (except those for additions or non-habitable detached structures): The applicants design engineer must evaluate the access, and identifies any necessary improvements to bring the access into compliance with the standards of the Transportation Design and Construction Manual. The Transportation Design and Construction Manual standards for streets/roads and driveways is established based on the existing and/or potential use of the access system. (orig. XX-XX-XX)

(b) Building Permits for additions or non-habitable detached structures: The applicant shall provide a letter from the Fire Protection District indicating if the existing access is acceptable. The Fire Protection District may add conditions to the acceptance of access as deemed necessary. (orig. XX-XX-XX)

The Transportation Design and Construction Manual details the relief process for any street/road or driveway that cannot meet the applicable access standards. (orig. XX-XX-XX)

~~(a) Design and construction compliance, through the appropriate county process, shall be required for those portions of the access that are located within county right-of-way, public right-of-way or on land under the control of the person or entity seeking the Building Permit, and for any additional requirements that the fire protection district may have as a condition for their approval of an alternate access standard. A Stop Work Order for a building permit may be issued for failure to construct the improvements required by this section in accordance with the approved plans. (orig. 12-5-95; am. 12-17-02; am. 10-25-05; am. 4-20-10)~~

~~(b) When design and construction compliance would involve construction on land that is not under the control of the person or entity for whom a Building Permit is sought, and is not located within county or public right-of-way, then the applicant shall submit a written advisory statement from the local fire protection district describing whether such portion of the private street/road and/or driveway is deemed acceptable for emergency vehicle use. If access is not deemed acceptable for emergency vehicle use by the Fire Protection District, the letter shall identify the improvements that the Fire Protection District believes are necessary for the access to be acceptable for emergency vehicle use. (orig. 5-20-08; am. 10-13-09; am. 4-20-10)~~

~~Should the Fire District deem the access not acceptable for emergency vehicle use, the applicant may choose to either: (orig. 5-20-08)~~

~~(b-1) Arrange to correct all access deficiencies and obtain a new advisory statement from the Fire Protection District stating that the access is acceptable for emergency vehicle use, or (orig. 5-20-08)~~

~~(b-2) Sign an affidavit of understanding, on a form provided by Planning and Zoning, stating that the applicant is aware that emergency services may be nonexistent, diminished, or slowed for the site and agreeing to indemnify, defend, save and hold the County, its agents and employees harmless from any claims, demands and liability resulting from or arising out of the construction, installation and use of the structures, devices or improvements by the Owner(s), their heirs, successors and assigns. If the applicant chooses this option, then both the affidavit of understanding and the statement from the Fire Protection District shall be recorded with the Jefferson County Clerk and Recorder. (orig. 5-20-08; am. 4-20-10)~~

(5) Previous Review of Access: If the property for which the building permit is sought has gone through an approved Rezoning, Special Use, Plat, Exemption, Minor Adjustment, Site Development Plan, Grading Permit, or Notice of Intent subsequent to April 20, 2010, then the access verification that occurred during that process shall be deemed sufficient for the building permit process, unless the access being proposed for the building permit is not consistent with what was previously reviewed or the access standards of this section have been revised subsequent to the approval of the application. For Rezoning and Special Use applications, if the provisions of the Physical Standard of Access were not reviewed during the process, then those provisions must be satisfied prior to the issuance of the building permit. (orig. 4-20-10)

2. Miscellaneous Zoning Permit

a. It shall be unlawful for any person, firm or corporation to erect, construct, reconstruct, structurally alter any building or structure, and/or commence any of the following activities without first obtaining a Miscellaneous Zoning Permit. The permit shall be valid for one year, all work must be completed within this time frame or a new or renewal permit will be required. Planning and Zoning may request documentation to ensure compliance with the regulations. (orig. 5-3-94; am. 3-28-00; am. 5-25-04; am. 5-20-08; am. 3-26-13)

(1) Any structure not requiring a Building Permit, including but not limited to entry features, gazebos, retaining walls over 36 inches in height, decks less than 30 inches but greater than 12 inches in height, chicken coops, and beehives. (orig. 5-3-94; am 3-28-00; am. 12-17-02; am. 3-26-13; am 5-10-22)

(a) Mini-structures that are less than 200 square feet, 14 feet or less at the peak, and do not house livestock do not require a permit (orig. 5-10-22)

(2) Recreation facilities, including but not limited to tennis courts, swimming pools, playgrounds, and golf courses. (orig. 5-3-94; am. 7-17-18)

(3) Broadcasting and receiving devices, including but not limited to private satellite dishes over 18 inches in diameter, television and/or radio towers, cellular towers, antenna, and ham radio towers. (orig. 5-3-94; am. 3-28-00; am. 12-17-02)

(4) Temporary structures not requiring a Building Permit, including but not limited to sales and/or security trailers, temporary buildings and/or facilities, and mobile homes. Temporary uses and/or structures, including but not limited to fireworks stands, Christmas tree sale lots, parking lot sales and seasonal produce and/or flower stands. (orig. 5-3-94; am 5-10-22)

(5) Home occupations as outlined in the Home Occupations Section of this Zoning Resolution. (orig. 5-3-94; am. 3-26-13)

(6) Group living facility for more than 3 unrelated persons. (orig. 5-25-04)

(7) Any gate across access that serves a parcel or parcels, a tract or tracts, or a lot or lots. A Miscellaneous Zoning Permit issued for such purpose shall first be approved by the applicable fire protection district. Access through the gate shall be granted to beneficiaries of any easements and emergency service providers. (orig. 5-10-22)

(8) A noise barrier fence, maximum of 8 feet in height, may be constructed adjacent to right-of-way for an arterial or higher-class street or road. (orig. 7-1-03; am. 7-17-18; reloc. 5-10-22)

b. A Miscellaneous Zoning Permit shall not be issued unless the plans and the use conform to the

provisions of this Zoning Resolution. (orig. 5-3-94)

c. The owner, at the time of issuance of a Miscellaneous Zoning Permit, and the person to whom the permit is issued shall be responsible for compliance with all the requirements set forth in this Zoning Resolution for the building, structure and/or activity covered by the permit. (orig. 5-3-94; am. 12-17-02)

3. Short-Term Rental Permit

a. It shall be unlawful for any person, firm or corporation to operate a short-term rental without obtaining an approved Short-Term Rental Permit. In addition, the following criteria must be met before the issuance of a Short-term Rental Permit: (orig. 1-1-12)

(1) The property owner shall notify each adjacent property owner in writing by certified mail of the name and contact information for the 24-hour local primary and secondary contacts. If such local contacts change, the property owner shall notify the adjacent property owners and the Jefferson County Planning and Zoning Division of the new local contacts' information in writing by certified mail within five (5) business days of the change in local contacts. (orig. 1-1-12)

(2) The dwelling shall be equipped with operable smoke alarms, fire extinguishers and carbon monoxide alarms. An operable carbon monoxide alarm shall be installed within fifteen (15) feet of the entrance to each room used for sleeping purposes. The smoke alarms shall be installed pursuant to the current International Building Code as adopted by the Jefferson County Division of Building Safety. (orig. 1-1-12)

(3) The proposed short-term rental shall provide a minimum of one (1) off street parking spaces, plus one (1) additional space per sleeping room. (orig. 1-1-12)

(4) Proof of adequate water and sewer. (orig. 1-1-12)

(5) Legal access in conformance with the access requirements of this Zoning Resolution. (orig. 1-1-12)

(6) Proof of Fire Protection. (orig. 1-1-12)

(a) Outdoor fires using wood or charcoal for fuel are always prohibited. (orig. 1-1-12)

(7) The property owner shall provide a current sales tax license for the short-term rental issued by the Colorado Department of Revenue. (orig. 1-1-12)

b. A permit for a short-term rental shall be obtained within thirty (30) days following review by the Board of Adjustment for approval or renewal of a special exception to allow a short-term rental of a single-family dwelling. The review of the Short-Term Rental Permit application will include but is not limited to: failure to comply with any conditions set by the Board of Adjustment on approval of the special exception for short-term rentals, complaints received by the Sheriff's Office for noise or improper parking, any active zoning violations or other impacts that cause the short-term rental to become incompatible with the surrounding land uses. (orig. 1-1-12)

c. The owner at the time of issuance of a short-term rental permit and the person to whom the permit is issued shall be responsible for compliance with all the requirements set forth in this Zoning Resolution for the building, structure and/or activity covered by the permit. (orig. 1-1-12)

d. Once the short-term rental permit has been issued, the owner shall provide all rental dates to the Jefferson County Planning & Zoning Division. In turn, Planning & Zoning shall provide this information to the Jefferson County Assessor and the Colorado Department of Revenue. This report shall be filed quarterly. (orig. 1-1-12)

e. The property owner shall post the 24-hour local contact information as well as the Short-Term Renter Good Neighbor Brochure as created by the Planning and Zoning Division at a prominent location within the structure. In addition, the property owner shall provide each renter with a copy of the brochure at the time of occupancy. (orig. 1-1-12)

f. The County may revoke a Short-Term Rental Permit at any time for failure to comply with the provisions of this Zoning Resolution concerning short-term rentals and/or confirmed violation(s) of any federal, state, or local law, ordinance, or regulation. The decision of the County to revoke a Short-Term Rental Permit may be appealed to the Board of Adjustment. No short-term rental of the subject property may occur while an appeal is pending. (orig. 1-1-12)

4. Setback Criteria from Streets/Roads: Setbacks shall be measured from the private access easements, easements associated with public street/road templates set forth in the Jefferson County Transportation Design and Construction Manual or flow line/edge of pavement of public and private streets or roads, except where Planning and Zoning finds that the private access easement functions as a shared driveway, based upon criteria including the following: (orig. 3-15-82; am. 12-17-02; am. 5-20-08; am. 10-13-09; am. 3-3-15; am. 11-24-15; am. 7-17-18)

    a. Estimated current or projected average daily traffic (ADT); (orig. 3-15-82; am.10-13-09)

    b. Design and topography; (orig. 3-15-82)

    c. Providing connection between thoroughfares. (orig. 3-15-82)

    d. Number of properties served by the easement. (orig. 7-17-18)

    In the event the private access easement is determined to be functionally equivalent to a shared driveway, a minimum setback from the access easement of five (5) feet shall apply. (orig. 7-17-18)

5. General Setback Criteria:

    a. All setbacks shall be measured from the foundation or wall; however, eaves, roof overhangs, and fireplaces may protrude 24 inches into the setback. Underground counterforts and window wells may protrude into setbacks. (am. 7-17-18)

    b. The placement of improvements on any such zoned property may be further restricted by plat notes approved by the Board of County Commissioners in conjunction with an approved Plat, Exemption from Platting, or other process subject to the Land Development Regulations. (reloc. 7-17-18)

E. Zone District Boundaries

For purposes of determining zone district boundaries after vacation of a right of way dedicated or deeded to the County, the zoning applicable to the property abutting on either side of the right of way shall, after vacation, be deemed to extend to the centerline of such vacated right of way. (orig. 9-6-77)

F. Street/Road Setbacks

For purposes of measuring front, side and rear setbacks, all measurements shall be measured from the future right of way line when the street or road is designated on the "County Major Thoroughfare Plan". (orig. 7-28-58; am. 9-6-77; am. 12-17-02; am. 10-13-09)

G. Front Yard

1. On a through lot, the front yard requirements of the applicable zone district shall apply to each lot line fronting on a street. (orig. 5-6-46; am. 9-6-77)

2. Regardless of the location of, or the direction that any structure faces and regardless of where the main entryway into the structure is located, the front lot line of a lot shall be as indicated on the subdivision plat or if not shown on a Subdivision Plat, it shall be determined by the main route of access into the property. (orig. 7-28-58; am. 9-6-77; am. 12-17-02)

3. Every part of the required front yard shall be open and unobstructed from its lowest point to the sky, except for landscaping and fencing not prohibited by the appropriate Section of this Zoning Resolution; and except for entry features with a minimum 14 foot height clearance. (orig. 5-6-46; am. 12-26-62; am. 9-6-77; am. 8-6-80; am. 12-17-02; am 7-17-18)

H. Side Yard

Every part of the required side yard shall be open and unobstructed from its lowest point to the sky, except for landscaping, accessories such as clothes lines, swing sets up to 8 feet in height and fencing not prohibited by the appropriate Section of this Zoning Resolution. (orig. 5-6-46; am. 9-6-77; am. 8-6-80; am. 12-17-02)

I. Rear Yard

Every part of the required rear yard shall be open and unobstructed from its lowest point to the sky, except for landscaping and accessories such as clothes lines, swing sets up to 8 feet in height and fencing not prohibited by the appropriate Section of this Zoning Resolution. (orig. 5-6-46; am. 9-6-77; am. 8-6-80; am. 12-17-02)

J. Fences

1. Fences shall meet the standards set forth in the Zoning Resolution and applicable County Regulations. (orig. 5-10-22)

2. A noise barrier fence, maximum of 8 feet in height, may be constructed adjacent to right-of-way for an arterial or higher-class street or road. (orig. 7-1-03; am. 7-17-18; reloc. 5-10-22)

3. Fences on corner lots must comply with vision clearance triangle requirements. (orig. 7-17-18; reloc. 5-10-22)

4. Fences more than 42 inches in height are allowed, subject to the following development standards:

   a. Side-to-street setback: Fence shall be set back to the edge of the sidewalk, or at least 10 feet from the flowline of adjacent streets if no sidewalk exists. (orig. 7-17-18; reloc. 5-10-22)

   b. Front setback: Fences shall be set back to the edge of the sidewalk, or at least 10 feet from the flowline of adjacent streets if no sidewalk exists, provided the applicable zone district allows fences in the front setback. (orig. 7-17-18; reloc 5-10-22)

   c. Fences shall maintain a 25'x25' sight triangle for all driveways, both on-site and off-site, which is measured from the edge of driveway and the flowline of street/road. (orig. 7-17-18; reloc. 5-10-22)

K. Rubbish

The outdoor storage of rubbish is prohibited unless expressly allowed by the applicable zone district. (orig. 5-20-08)

L. Height Regulation

1. The height limitations established for each zone district shall apply to flagpoles; and radio, television or microwave towers (including antennas), except as otherwise provided within this section. Noncommercial antenna installations for home use of radio or television are excluded. (orig. 6-14-88; am. 6-7-94; am. 12-17-02; am. 4-20-10)

2. The height limitations established for any zone district, except Planned Development, shall not apply to chimneys, stacks, water towers, grain elevators, silos, elevators, monuments, dome spires, belfries, hangars and accessory symbols of government, religious, fraternal and civic organizations when attached to the respective building. (orig. 5-6-46; am. 9-6-77; am. 6 14 88; am. 4-20-10)

M. Dangerous and/or Wild Animals

1. Notwithstanding any other provision of this Zoning Resolution and except as provided in paragraphs L.2. and L.3. below, no person shall own, possess, harbor, maintain or keep any of the following species of animals, other than wildlife in existing natural habitat, on any property within any zone district (other than as specified in the Agricultural-Two (A-2) and Agricultural Thirty-Five (A-35) Zone Districts) in the unincorporated area of Jefferson County. The restrictions within this section apply to the A-2 and A-35 Zone Districts, when the property is at least 10 acres in size, and the keeping of dangerous and wild animals is done in accordance with an approved Special Use. (orig. 8-1-78; am. 3-28-00; am. 12-17-02; am. 3-26-13)

   a. Poisonous reptiles, species of nonpoisonous snakes which ordinarily grow to more than 6 feet in length when mature, and lizards belonging to the family Varanidae; (orig. 8-1-78)

   b. Crocodilians; (orig. 8-1-78)

   c. All species of non-human mammals except the following: (orig. 8-1-78)

      (1) Domestic cat (Felis catus); (orig. 8-1-78)

      (2) Chinchilla (Chinchilla laniger); (orig. 8-1-78)

      (3) Domestic dog (Canis familiaris); (orig. 8-1-78)

      (4) Domestic ferret (Mustela putoris furo); (orig. 8-1-78)

      (5) Mongolian gerbil (Meriones unguicularus); (orig. 8-1-78)

      (6) Guinea pig (Cavia porceilus); (orig. 8-1-78)

      (7) Hamster (Mesocricetus auratus); (orig. 8-1-78)

      (8) Domestic laboratory mouse (Mus domesticus); (orig. 8-1-78)

      (9) Domestic rabbit (Oryctolagus cuniculus); (orig. 8-1-78)

      (10) Domestic laboratory rat (Rattus rattus albino strain); (orig. 8-1-78)

      (11) Squirrel monkey (Saimiri seinrous); (orig. 8-1-78)

(12) Owl monkey (Aotus trivirgatus); (orig. 8-1-78)

(13) Woolly monkey (Lagothrix lagothrica); (orig. 8-1-78)

(14) Pygmy Goat (Goatus Minimus); (orig. 7-17-18)

(15) Miniature Pig (Göttinger minipig); (orig. 7-17-18)

(14) Domestic livestock including, but not limited to the following: horses, cattle, sheep, goats, swine, mules, donkeys, burros, llamas, alpacas, emu, and ostrich. (orig. 8-1-78; am. 12-17-02)

2. For any property zoned Agricultural-Two (A-2) and Agricultural Thirty-Five (A-35), the owner thereof shall receive Special Use approval in order to be permitted to own, possess, harbor, maintain or keep any one or more animals of the species listed in paragraph L.1. above, where the ownership, possession, harboring, maintenance or keeping of such animal(s) is necessary to a use which is otherwise in compliance with the applicable zone district regulations and is specifically for one of the following purposes: (orig. 8-1-78; am. 12-17-02; am. 3-26-13)

   a. To be used for scientific research or for production of scientific or commercial supplies or as breeding stock in connection with a business or other commercial operation or research facility established as a use upon the premises; or (orig. 8-1-78)

   b. To be used for purposes of public commercial exhibition, whether as a profit or nonprofit operation, such as a permanent zoological gardens or a temporary or traveling menagerie, circus, rodeo or livestock show. (orig. 8-1-78)

3. For any property zoned Agricultural-Two (A-2) and Agricultural Thirty-Five (A-35), the owner thereof shall receive Special Use approval in order to be permitted to own, possess, harbor, maintain or keep any one or more animals of the species prohibited under paragraph L.1. above, where the applicant demonstrates a special interest and competency in caring for such an animal or animals, and where the applicant demonstrates to the satisfaction of the Planning Commission and the Board of County Commissioners that the health, safety and welfare of humans and domestic animals in the area and of the general public is adequately safeguarded. (orig. 8-1-78; am. 12-17-02; am. 3-26-13)

4. The application for a Special Use under paragraphs: L.2. and L.3. above, shall be made to the Planning Commission. If approved by the Planning Commission, the application shall proceed to the Board of County Commissioners, which must also approve the application for the Special Use to be permitted. (orig. 8-1-78; am. 12-17-02)

5. One criterion relevant to the determination of whether to approve the Special Use shall be the agreement by the applicant that proposed facilities for the keeping of such animal(s) will be constructed and maintained in accordance with the requirements of the Colorado Division of Wildlife. (orig. 8-1-78)

   As a condition of the continued validity of any Special Use granted under paragraphs L.2 and L.3 above, the applicant must at all times ensure that adequate safeguards for the health and security of both the animal(s) and humans and domestic animals in its (their) vicinity are provided, and must at all times be in compliance with all rules and regulations of the Colorado Division of Wildlife, including permit requirements; and, in addition, the applicant must at all times keep the animal(s) securely locked in the facilities approved by the Colorado Division of Wildlife which provide such adequate safeguards. (orig. 8-1-78)

N. Sexually Oriented Businesses

1. No person may operate or cause to be operated a sexually oriented business within 1,000 feet of any of the following, whether the use or zone district listed below is unincorporated Jefferson County, an adjacent county, or within an incorporated municipality. (orig. 7-8-97)

   a. A Religious Assembly. (orig. 7-8-97; am. 3-26-13)

   b. A school meeting all requirements of the compulsory education laws of the state. (orig. 7-8-97)

   c. The boundary of any zone district in which one of the primary uses is residential. (orig. 7-8-97)

   d. A dwelling unit (single or multiple). (orig. 7-8-97)

   e. A public park. (orig. 7-8-97)

   f. A licensed childcare center. (orig. 7-8-97)

   g. An establishment holding a liquor license. (orig. 7-8-97)

2. No person may operate or cause to be operated a sexually oriented business within 1,000 feet of another sexually oriented business. (orig. 7-8-97)

3. No person may cause or permit the operation, establishment or maintenance of more than one sexually oriented business within the same building or structure or portion thereof, such as in a shopping center. A sexually oriented business may include one or more types of sexually oriented business provided it has one address and is operated as a single business entity that has one sales tax license number. (orig. 7-8-97)

4. For the purposes of this section, the distance between any two sexually oriented businesses shall be measured in a straight line, without regard to intervening structures, streets, or political boundaries, from the closest exterior structural wall of each business. (orig. 7-8-97)

5. For purposes of this section, the distance between any sexually oriented business and any Religious Assembly, school, child care center, public park, establishment holding a liquor license, dwelling unit (single or multiple) or residential zone district shall be measured in a straight line, without regard to intervening structures or objects or political boundaries, from the closest exterior wall of the structure in which the sexually oriented business is located to the nearest property line of the premises of a Religious Assembly, school, child care center, an establishment holding a liquor license, or dwelling unit (single or multiple), or the nearest boundary of an affected public park or residential zone district, whichever is closest. (orig. 7-8-97; am. 3-26-13)

6. If two or more sexually oriented businesses are within 1,000 feet of one another and are otherwise in a permissible location, the sexually oriented business which was first established and continually operating at its particular location will be deemed to be in compliance with this Zoning Resolution and the later established business(es) will be deemed to be in violation of this Zoning Resolution. (orig. 7-8-97; am. 12-17-02)

7. A sexually oriented business lawfully operating is not rendered in violation of this Zoning Resolution by the subsequent location of a Religious Assembly, school, childcare center, dwelling unit (single or multiple), public park, establishment holding a liquor license, or residential zone district within 1,000 feet of the sexually oriented business. (orig. 7-8-97; 12-17-02; am. 3-26-13)

8. All sexually oriented business shall blacken their windows or arrange the business so that the interior of the business and its stock in trade cannot be viewed from the exterior of the business. (orig. 7-8-97)

O. Bars and Taverns

1. No establishment holding a liquor license may operate within 1000 feet of a sexually oriented business. (orig. 7-8-97)

2. For purposes of this section, the distance between any sexually oriented business and any establishment holding a liquor license shall be measured in a straight line, without regard to intervening structures or objects or political boundaries, from the closest exterior wall of the structure in which the sexually oriented business is located to the nearest property line of the premises of an establishment holding a liquor license. (orig. 7-8-97)

P. Rural Cluster

Permitted uses, lot and building standards, and general requirements for specific zone districts may differ from the standards specified in this Zoning Resolution for applications undergoing a rural cluster land division. When the regulations of the rural cluster process, as contained in the Land Development Regulation, conflict with any provision of this Zoning Resolution, the provision of the rural cluster process shall control. (orig. 10-13-98; am. 12-17-02)

Q. Marijuana

1. Private Marijuana Clubs are prohibited in all zone districts as principal or accessory uses, regardless of whether any such use is operated for profit or not for profit. (orig. 4-14-14)

2. Cultivation or processing of marijuana is only allowed in an enclosed, locked structure located on a residential property which constitutes the primary residence of the cultivator/processor, and only for personal use of the cultivator/processor. No more than 6 plants may be grown on each residential property for each registered medical marijuana patient or adult age 21 or older, and in no case may more than 12 plants be grown on a residential property. Nothing in this section shall be construed to prohibit the cultivation or processing of medical marijuana by a primary caregiver for his or her patients, provided that any such primary caregiver does not exceed the limitations on number of plants set forth in this section

and is growing the plants in accordance with applicable provisions of Article XVIII, Section 14 of the Colorado Constitution; C.R.S. § 25-1.5-106, as amended; and any applicable rules promulgated under state law. (orig. 4-14-14)

DRAFT LAND DEVELOPMENT REGULATION SECTION 15

Section 15 - Circulation

(orig. 7-12-05)

A. Planning Standards

1. Street/Road Standards: Plans for streets/roads shall be prepared in accordance with the Jefferson County Transportation Design and Construction Manual and shall be approved by Planning and Zoning prior to plat recordation. (am. 7-12-05; am. 5-20-08; am.11-24-15)

   a. Rights-of-Way for public streets/roads, easements for private streets/roads, and emergency access easements shall be granted, conveyed and transferred in accordance with the following: (reloc. 7-12-05; am. 7-17-18)

      (1) Public Street/Road System:

         (a) The fee simple property owner shall be required to dedicate rights-of-way for the following: (am. 7-12-05; am. 7-17-18)

            (a-1) Streets/roads shown on the current Major Thoroughfare Plan within or adjoining the subdivision. (reloc. 7-12-05)

            (a-2) Proposed public streets/roads within the subdivision. (reloc. 7-12-05)

            (a-3) Proposed public streets/roads that connect the subdivision to existing County, state or city maintained streets/roads. (reloc. 7-12-05)

            (a-4) Existing public streets/roads, not previously dedicated, that are within or adjoining the subdivision. The dedication requirement for adjoining streets shall be for the adjoining one-half of the street, and for any portion of the opposite one-half of the street which is under the ownership of the developer. (reloc. 7-12-05; am. 7-17-18)

            (a-5) Turn lanes, speed change lanes and tapers along adjoining property or properties required for construction and safe operation of intersections and new street/road facilities for the proposed subdivision. (reloc. 7-12-05)

         (b) Rights of way for public streets/roads within the boundaries of the subdivision shall be dedicated to Jefferson County in accordance with the Dedication Certificate provisions in the Final Plat Section of this regulation. (orig. 7-17-18)

         (c) Rights of way for public streets/roads exterior to the subdivision boundaries shall be conveyed to the County of Jefferson, in fee simple by general warranty deed, or another type of deed in a form acceptable to the Office of the County Attorney. Unless otherwise approved by the Office of the County Attorney, rights of way shall be free of all encumbrances, including, without limitation, liens, easements, and deeds of trust. (orig. 7-17-18)

      (2) Private Street/Road Systems:

         (a) The provision of access by private streets/roads shall only be permitted if the following applies: (reloc. 7-12-05)

            (a-1) The developer has taken all actions necessary to ensure perpetual access for the benefit of each lot, tract or parcel, and to ensure that the private street/road system within the subdivision is maintained. (reloc. 7-12-05; am. 5-20-08)

            (a-2) The developer has acquired sufficient rights, title, and interest in adjoining property to construct an exterior street/road system to connect the subdivision to public streets/roads to ensure perpetual access to each lot, tract or parcel, and establish permanent maintenance of the private streets/roads. (reloc. 7-12-05)

            (a-3) Access to adjoining properties is not necessary unless required pursuant to A.1.c.(5). (am. 7-12-05; am. 7-17-18)

         (b) Each private street/road within the subdivision boundary shall be designated as a "Utility, Drainage and Emergency Access Easement" on the plat. This Utility, Drainage and

Emergency Access Easement will be dedicated to Jefferson County in accordance with the Dedication Certificate provisions in the Final Plat Section of this regulation. (orig. 7-17-18)

(3) Exterior Emergency Access Easements:

(a) Emergency Access Easements shall be conveyed to Jefferson County for required exterior emergency access connections where the developer does not have the necessary rights to ensure perpetual access for the benefit of each lot, tract or parcel within the development boundary. (am. 7-17-18)

(b) Emergency Access Easements shall be conveyed to Jefferson County by easement deed in a form acceptable to the Office of the County Attorney. The following shall apply to the dedication of the Emergency Access Easements: (am. 7-17-18)

(b-1) The easement shall be for emergency and service vehicle access, and drainage and utility purposes. (orig. 7-17-18)

(b-2) The easement shall not obligate the County to provide maintenance services. (am. 7-17-18)

(b-3) The easement deed shall expressly state that it conveys to the County an easement for each of the following purposes: (i) passage of service vehicles and passage of all vehicles and pedestrians during an emergency; (ii) drainage; and (iii) utilities. (am. 7-12-05; am. 7-17-18)

(b-4) The easement shall be from the fee simple property owner or the owner of a prior easement that expressly provides that it can be assigned or conveyed to the County. (orig. 7-17-18)

(4) Public street/road right-of-way widths and private street/road easement widths shall be provided in accordance with the templates in the Transportation Design and Construction Manual. Additional rights-of-way/easements may be required at locations such as, but not limited to, round-abouts, interchanges, acceleration, deceleration, turn or climbing lanes, cut and fill slopes, sidewalks, trails, medians, traffic signs, and drainage structures, and for maintenance. (reloc. 7-12-05; am. 11-24-15; am. 7-17-18)

b. Street/Road Design

(1) Streets/roads, whether public or private, shall be designed in accordance with the current American Association of State Highway and Transportation Officials (AASHTO) Standards unless modified by the Jefferson County Transportation Design and Construction Manual. (reloc. 7-12-05; am 11-24-15)

(2) Paving of streets/roads within the proposed development and streets/roads connecting the proposed development with other County, state or city paved streets/roads shall be in accordance with the following: (reloc. 7-12-05; am. 12-5-06)

(a) New street/roads to be maintained by the County, state or city shall be constructed to the appropriate public street/road template standard, which includes paving. (orig. 12-5-06)

(b) Existing unpaved County maintained streets/roads shall be constructed to the appropriate public template standard (which includes paving) for a length that is equal to the development impact on the street/road system. For residential development, the development impact shall not exceed a maximum of 4% per lot. If the development impact to a street/road exceeds 80%, then paving for the entire length will be required. The impact on a street/road system will be determined using the following formulas. (reloc. 7-12-05; am. 12-5-06)

Development Impact (%) = Proposed ADT / (Existing ADT + Proposed ADT)

Paving Requirement = Length of Unpaved Section X Development Impact (%)

- Length of Unpaved Section is the distance from the development access point(s) to the paved street/road. (orig. 12-5-06)
- Proposed ADT is the number of trips generated by the proposed development. (orig. 12-5-06)

- Existing ADT is the number of actual trips on the street/road. Existing ADT shall be determined using a traffic counting device located on the gravel portion of the street/road immediately adjacent to the paved section. (orig. 12-5-06)

(c) Should the County choose to accept a cash-in-lieu of construction payment for the paving requirement, the required paving contribution shall be calculated using following:

- Appropriate public street/road template width
- Minimum 5" full depth asphalt surface
- Current County cost for asphalt in place at the development location

The County shall use the cash-in-lieu of construction monies for any improvement on the street/road as deemed necessary or desirable by the County. (orig. 12-5-06)

(d) All private roads and all non-maintained roads in County right-of-way shall be paved if the sum of the existing and proposed ADT on the roads exceeds 150. The paving requirement will apply to that portion of the roads that exceeds 150 ADT (reloc. 7-12-05; am. 12-5-06)

(e) All private streets shall be paved. (orig. 7-17-18)

c. Patterns: Street/road patterns shall be planned consistent with the dedication and design requirements and the following: (reloc. 7-12-05)

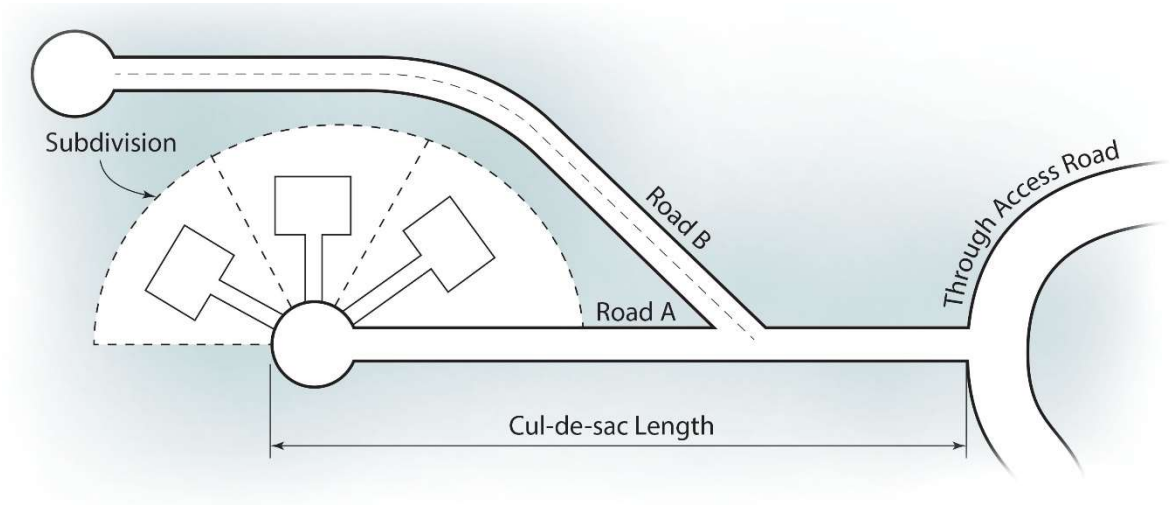
(1) Street/road patterns shall induce traffic flow appropriate to the function of the streets/roads. Long, straight and other local street alignments conducive to speeds in excess of 30 M.P.H. shall be avoided. In areas where that is not possible traffic calming measures such as bump outs, neckdowns shall be incorporated at approved intervals to effectively slow down design speeds. (reloc. 7-12-05; am. 7-17-18)

(2) Cul-de-sacs may be used when meeting the following criteria:

(a) Does not exceed 1 mile in length and serves no more than 30 existing plus proposed single family residential units (including platted lots) or obtain approval from ~~the fire protection district~~Planning and Zoning for alternate standards that provide acceptable fire protection and safety mitigation measures concerning access and water. (orig. 11-24-15; am. 7-17-18; am. XX-XX-XX)

(b) Serves no more than 100 multi-family units or obtain approval from Planning and Zoning~~the fire protection district~~ for alternate standards that provide acceptable fire protection and safety mitigation measures concerning access and water. (orig. 11-24-15; am. 7-17-18; am XX-XX-XX)

(c) Cul-De-Sac length is measured from the maximum street/road length of the developable lot within the proposed subdivision to the beginning of the cul-de-sac. (orig. 7-17-18)



(3) Streets/roads shall be planned and designed to minimize grading and scarring of the terrain, and not create erosion and drainage problems. (reloc. 7-12-05)

(4) Streets/roads shall be continuous and conform in alignment and grade with existing, planned or platted streets/roads with which they are to connect. (reloc. 7-12-05)

(5) Streets/roads shall extend to the subdivision boundary lines as deemed necessary by Planning and Zoning for the connection with adjacent lands. Public streets/roads so extended shall be dedicated as collector streets/roads unless a template for a local street/road is approved by Planning and Zoning. Private streets/roads may be extended to the subdivision boundary provided said private streets/roads are equivalent to public streets/roads for the connection with adjacent lands, if approved by Planning and Zoning (reloc. 7-12-05; am. 5-20-08; am. 7-17-18)

(6) Streets/roads that extend to the boundary line shall be provided with a turn-around. Temporary portions of the turn-around shall be labeled as tracts to facilitate the ultimate reversion of the same. If lots are not dependent upon the extended streets/roads for access, the right-of-way, not including a turn-around, shall be dedicated, but construction of the extended street/road will not be required. (reloc. 7-12-05)

(7) Streets/roads shall intersect one another at right angles or as nearly at right angles as topography and other limiting factors permit. (reloc. 7-12-05)

(8) Intersection spacing shall conform to the Jefferson County Transportation Design and Construction Manual. (am. 7-12-05; am. 5-20-08; am. 11-24-15; am. 7-17-18)

(9) Traffic calming physical devices, such as speed bumps and raised crosswalks shall require approval from the fire protection district and conform to current County policies and procedures. All other traffic calming devices are considered non-physical devices, such as bumpouts, pedestrian refuges and the like, are allowed subject to approval by Planning and Zoning. (orig. 11-24-15)

(10) Subdivisions shall have a street/road system that provides primary and secondary access to existing County, state or city maintained streets/roads, except that secondary access is not required for developments with access provided it meets the cul-de-sac requirements as set forth in this Section. The minimum distance between the centerlines of the primary and secondary access streets/roads shall be in accordance with the spacing provision. The provision of emergency access in-lieu of secondary access shall only be permitted if the following applies: (am. 7-12-05; am. 11-24-15)

(a) Secondary full-time access is not needed for transportation operations and maintenance and level of service to provide appropriate vehicular access and circulation control. (am. 7-12-05; am. 7-17-18)

(b) The developer has taken or agrees to take all actions necessary to ensure that an emergency access has been dedicated to the County and that an emergency access system is maintained. (reloc. 7-12-05)

(c) The developer has taken or agrees to take all actions necessary to ensure that the emergency access will be closed always, except during emergency situations, to vehicle traffic. (reloc. 7-12-05)

(d) The applicable fire protection district has approved the plans for the emergency access facilities and appurtenances thereto. (reloc. 7-12-05)

(e) Access to adjoining properties is not required pursuant to A.1.c.(5) of this Section. (am. 7-12-05; am. 7-17-18)

(f) The emergency access street/road is designated as an "Emergency Access Easement" on the plat and the developer has complied with A.1.a.(2)(b) and A.1.a.(3) of this Section for any portion of the emergency access system exterior to the subdivision. (am. 7-12-05)

d. Names: Streets/roads shall be named in accordance with the following: (reloc. 7-12-05)

(1) Plains: Names of all streets shall be in full conformance with the metropolitan grid system as shown on the Official Jefferson County Base Maps. (reloc. 7-12-05)

(2) Mountains: Names of all roads shall be sufficiently different from previously adopted road names. (reloc. 7-12-05)

e. Street/Road Improvements: Street/road improvements shall be provided for the following: (reloc. 7-12-05)

(1) Streets/roads interior to the development. (reloc. 7-12-05)

(2) The adjoining one-half of contiguous arterial, collector and local streets/roads including streets/roads adjoining park and school lands created by the plat. (reloc. 7-12-05; am. 7-17-18; am. XX-XX-XX)

(3) If existing pavement on the opposite one-half of the street/road does not match with and tie to the required pavement section on the adjoining one-half, then a pavement overlay on part of the opposite one-half shall be required. If the existing pavement cross section is higher than the approved pavement cross section, then the existing pavement on the opposite one-half shall be adjusted or reconstructed to the approved height. (reloc. 7-12-05; am. 7-17-18)

(4) If the opposite side one-half of the street/road is not paved to current Jefferson County standards or does not exist, the developer shall be responsible for a 24-foot total pavement width plus the opposite side shoulder. If existing pavement on the opposite one-half of the street/road does not match with and tie to the required pavement section on the adjoining one-half, then a pavement overlay on part of the opposite one-half shall be required. If the existing pavement cross section is higher than the approved pavement cross section, then the existing pavement on the opposite one-half shall be adjusted or reconstructed to the approved height. (reloc. 7-12-05; reloc. 7-17-18)

(5) Street(s)/road(s) connecting the subdivision with existing Jefferson County, state or city maintained street(s)/road(s). The pavement width of the connecting street/road shall be the same as the street(s)/road(s) within the subdivision with which they connect. Shoulders shall be provided if curb/gutter and sidewalks are not required. (reloc. 7-12-05)

(6) ADA ramps shall be provided including the appropriate receiving ramp even if the entire construction is not adjoining the property. (orig. 7-17-18)

f. Applicants shall not be required to comply with A.1.e.(2), A.1.e.(3) and A.1.e.4 regarding adjoining street/road improvements when: (am. 7-12-05; am. 7-17-18)

(1) The proposed ADT is less than 50 where access is proposed to an existing paved street/road. (reloc. 7-12-05)

(2) The sum of the existing ADT plus the ADT from the proposed development will not exceed 150 where access is proposed to an existing gravel street/road. (reloc. 7-12-05)

2. Driveway Standards: Access from a street/road to 1 residential lot, tract, parcel or structure, or to 1 nonresidential lot, tract, parcel or structure shall meet or exceed the standards set forth below. Access to 2 or more residential or nonresidential lots, tracts, parcels or structures shall be provided by a street/road that conforms to the requirements of this Regulation. (am. 7-12-05; am. 5-20-08; am. 11-24-15)

a. Driveways within the lots/tracts shall be provided from the property line to the building site without: (reloc. 7-12-05)

(1) Creating erosion or drainage problems. (reloc. 7-12-05)

(2) Crossing sewage disposal leaching fields. (reloc. 7-12-05)

b. Driveway design shall facilitate all emergency vehicle movement. (reloc. 7-12-05)

c. Access shall be provided within residential and nonresidential areas to adjoining residential and nonresidential areas respectively as required by Planning and Zoning when such provisions would reduce or limit access onto a street/road. (am. 7-12-05; am. 4-4-06; am. 5-20-08; am. 12-21-10)

3. Curb and Gutter Standards: Curb and gutters or ditches shall be provided for subdivisions in the plains areas in accordance with the Jefferson County Transportation Design and Construction Manual and the following: (reloc. 7-12-05; am. 11-24-15)

a. 6” vertical curb and gutter (with detached sidewalk) or a 4-inch mountable curb and gutter (with attached or detached sidewalk) shall be provided along all local streets, unless otherwise approved by Planning and Zoning. (am. 7-12-05; am. 4-4-06; am. 12-21-10; am. 7-17-18)

b. A 6-inch vertical curb and gutter shall be provided along all collector and arterial streets and along

all streets adjoining public and semipublic tracts and multifamily and nonresidential lots. (reloc. 7-12-05)

c. Ditches may be provided along streets in lieu of curb and gutters where all of the following criteria are met: (reloc. 7-12-05)

(1) Streets are classified as local or collector (ADT less than 8,000). (reloc. 7-12-05; am. 7-17-18)

(2) Street grades are no less than 2 percent and no greater than 4 percent. (reloc. 7-12-05)

(3) Minimum lot frontage is 100 feet. (reloc. 7-12-05)

d. Planning and Zoning may approve roadside ditches in lieu of curb and gutter if it is determined that the curb and gutter cannot be designed to drain properly or if it will cause drainage problems in the area. (orig. 7-17-18)

4. Sidewalk Standards: Sidewalks shall be provided for developments in the Plains area in accordance with the Jefferson County Transportation Design and Construction Manual and the following: (reloc. 7-12-05; am 11-24-15; am. 7-17-18)

a. A 5-foot wide sidewalk (with combination curb and gutter) or a 5-foot wide detached sidewalk or trail shall be provided along local streets adjoining residential developments, unless otherwise approved by Planning and Zoning. (am. 7-12-05; am. 4-4-06; am. 12-21-10; am 11-24-15; am. 7-17-18)

b. A 5-foot attached or detached sidewalk shall be provided along all local and collector streets adjoining nonresidential and multifamily developments. (am. 7-12-05; am. 4-4-06; am. 12-21-10; am 11-24-15; am. 7-17-18)

c. A 6-foot wide detached sidewalk shall be provided along all minor arterial and major collector streets. (orig. 11-24-15)

d. An 8-foot wide detached sidewalk shall be provided along all principal arterial and parkway streets. (am. 7-12-05; am. 4-4-06; am. 11-24-15; am. 7-17-18)

e. Curb ramps shall be provided at all intersections. Mid-block ramps shall be provided at all "T" intersections. Mid block pedestrian ramps should be considered where there is an adjacent pedestrian path. (reloc. 7-12-05; am. 7-17-18)

f. Sidewalk easements shall be provided and dedicated when the sidewalk is not within a dedicated street right-of-way. (reloc. 7-12-05)

g. Adjacent bus stops shall be upgraded to comply with current RTD bus stop requirements. (orig. 7-17-18)

5. Traffic Signal Contributions:

a. A contribution toward a future traffic signal will be required if the following conditions are met:

(1) The development generates over 1000 average daily trips or 100 trips in a peak hour period; and (orig. 7-17-18)

(2) The Transportation Study indicates that an intersection internal, adjacent or within 500 feet of the development will satisfy the MUTCD Peak Hour Warrant or Four Hour-Warrant within 20 years. (orig. 7-17-18)

If the above conditions are met, then the applicant shall provide a contribution representing the proportional percentage of the site that is within 500 feet to the intersection requiring future traffic signal improvements. For illustrative purposes only, if the site is at the corner of one quadrant of the intersection the contribution shall be 25% of the traffic signal for the intersection. The contribution should be a cash-in-lieu payment, which will be returned to the applicant if conditions change or the traffic signal is no longer warranted within the original 20-year period. (orig. 7-17-18)

B. Construction Specifications

1. Street/Road and Curb/Gutter/Sidewalk Standards: Construction shall be in accordance with the approved Plans and meet the criteria of the Jefferson County Transportation Design and Construction Manual. (am. 7-12-05; am. 12-21-10; am. 11-24-15)